GRADE 8 MATHEMATICS

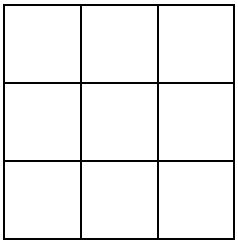
Blackline Masters

BLM 8.N.1.1: Determining Squares

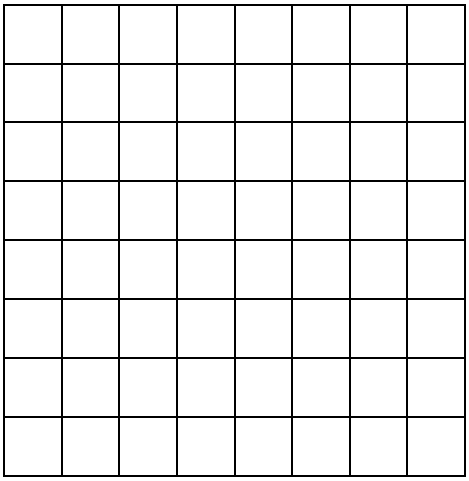
1. Determine the value of the following:

7^2	10^2	15^2	20^2

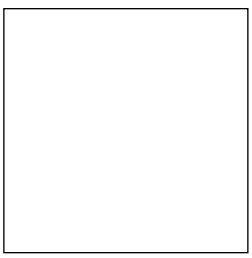
2. Determine the area of the following squares:



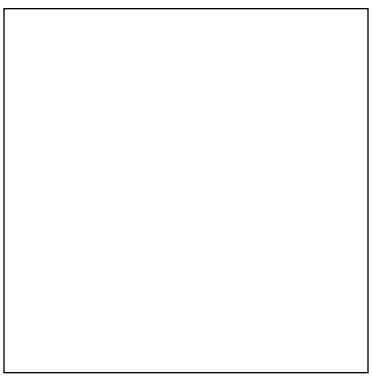
3 units



8 units



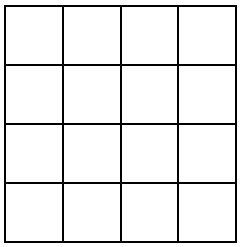
4 units



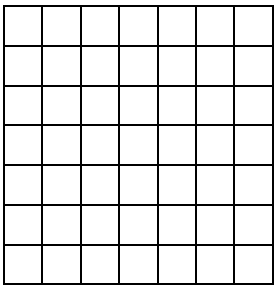
9 units

BLM 8.N.1.2: Determining Square Roots

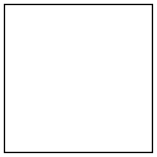
1. Determine the side length of the following squares:



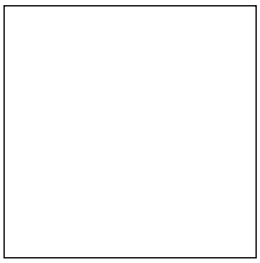
Area = 16 units^2



Area = 49 units^2



Area = 9 units^2



Area = 121 units^2

2. Determine the square root of the following:

$\sqrt{64}$	$\sqrt{144}$	$\sqrt{625}$	$\sqrt{900}$

BLM 8.N.1.3: I Have . . . , Who Has . . . ?

I have 25. Who has the square root of 36?	I have 6. Who has the square of a number between 7 and 8?	I have 52. Who has the square root of 85?	I have 9.2. Who has the square of 1?	I have 1. Who has the square of a number between 3 and 4?
I have 15. Who has the square root of 3?	I have 1.7. Who has the square of 4?	I have 16. Who has the square root of 144?	I have 12. Who has the square of a number between 9 and 10?	I have 90. Who has the square root of 150?
I have 12.2. Who has the square of 2?	I have 4. Who has the square root of 9?	I have 3. Who has the square of a number between 11 and 12?	I have 130. Who has the square root of 5?	I have 2.2. Who has the square of 7?

continued

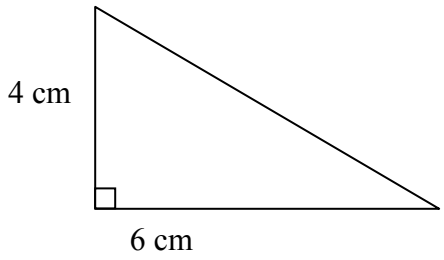
BLM 8.N.1.3: I Have . . . , Who Has . . . ? (continued)

I have 49. Who has the square root of 64?	I have 8. Who has the square of 10?	I have 100. Who has the square of a number between 5 and 6?	I have 30. Who has the square root of 121?	I have 11. Who has the square of 3?
I have 9. Who has the square of a number between 8 and 9?	I have 70. Who has the square root of 10?	I have 3.2. Who has 9 squared?	I have 81. Who has the square root of 4?	I have 2. Who has the square of 8?
I have 64. Who has the square of a number between 4 and 5	I have 20. Who has the square root of 49?	I have 7. Who has the square of 11?	I have 121. Who has the square root of 40?	I have 6.3. Who has 5 squared?

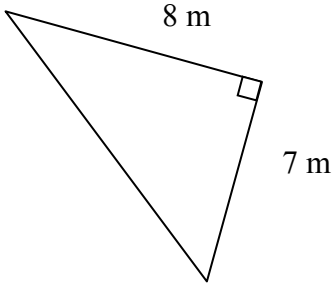
BLM 8.N.1.4: Pythagorean Theorem

1. Find the measure of the missing side in the following triangles:

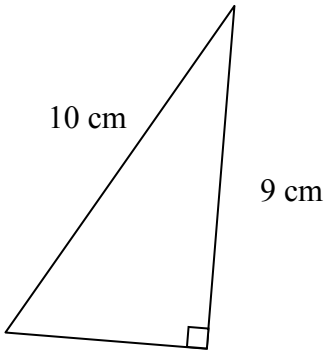
a.



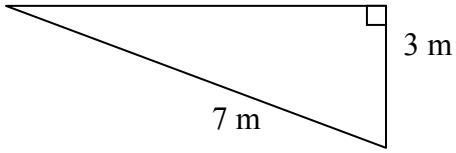
b.



c.



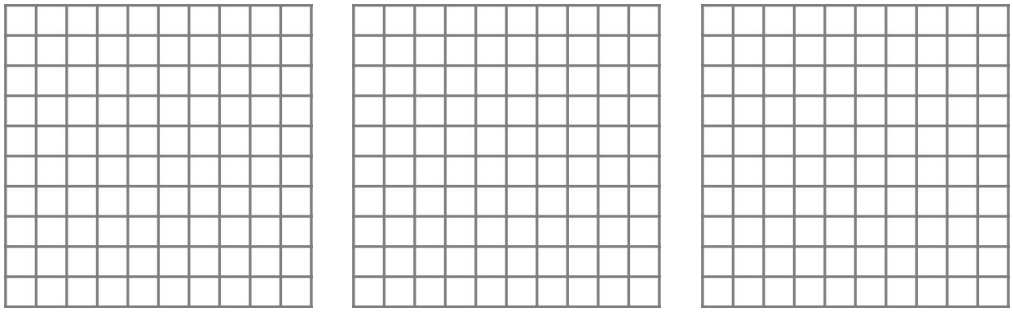
d.



2. Draw a triangle below. Use the Pythagorean theorem to determine whether your triangle is a right triangle.

BLM 8.N.3.1: Percent Pre-Assessment

1. Use the following grids to represent the following percents:
   a. 35%
   b. 78.5%
   c. 50%



2. Complete the following chart.

Fraction	Decimal	Percent
$\frac{3}{5}$		
$\frac{4}{9}$		
	0.75	
	0.125	
		22.5%
		95%
		15%

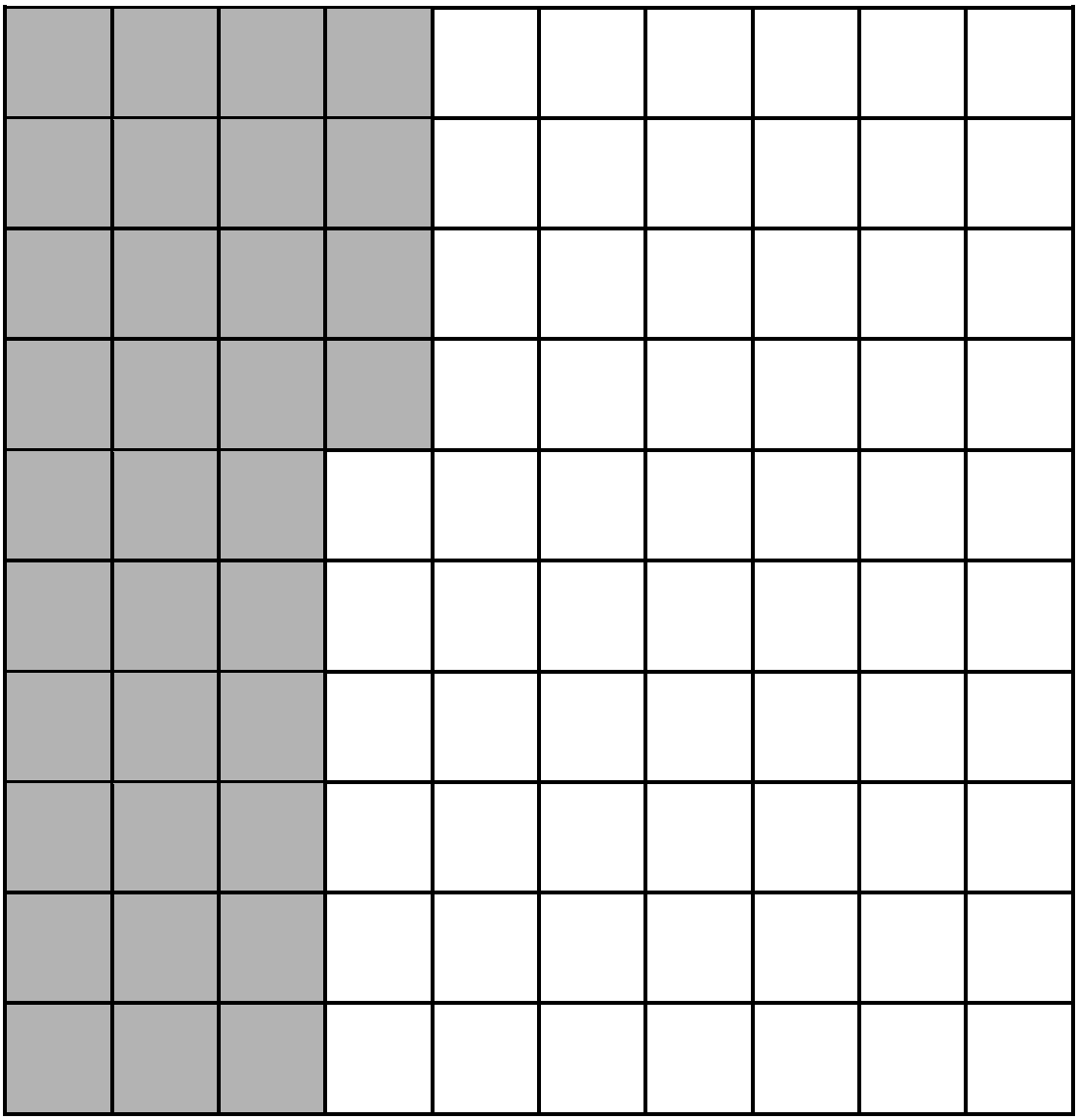
3. During this basketball season, Ruan took 325 shots and made 120 baskets. What was his shooting percentage?

4. A CD is offered at 25% discount. The original price was $25.50. What is the sale price of the CD?

BLM 8.N.3.2: Percent Self-Assessment

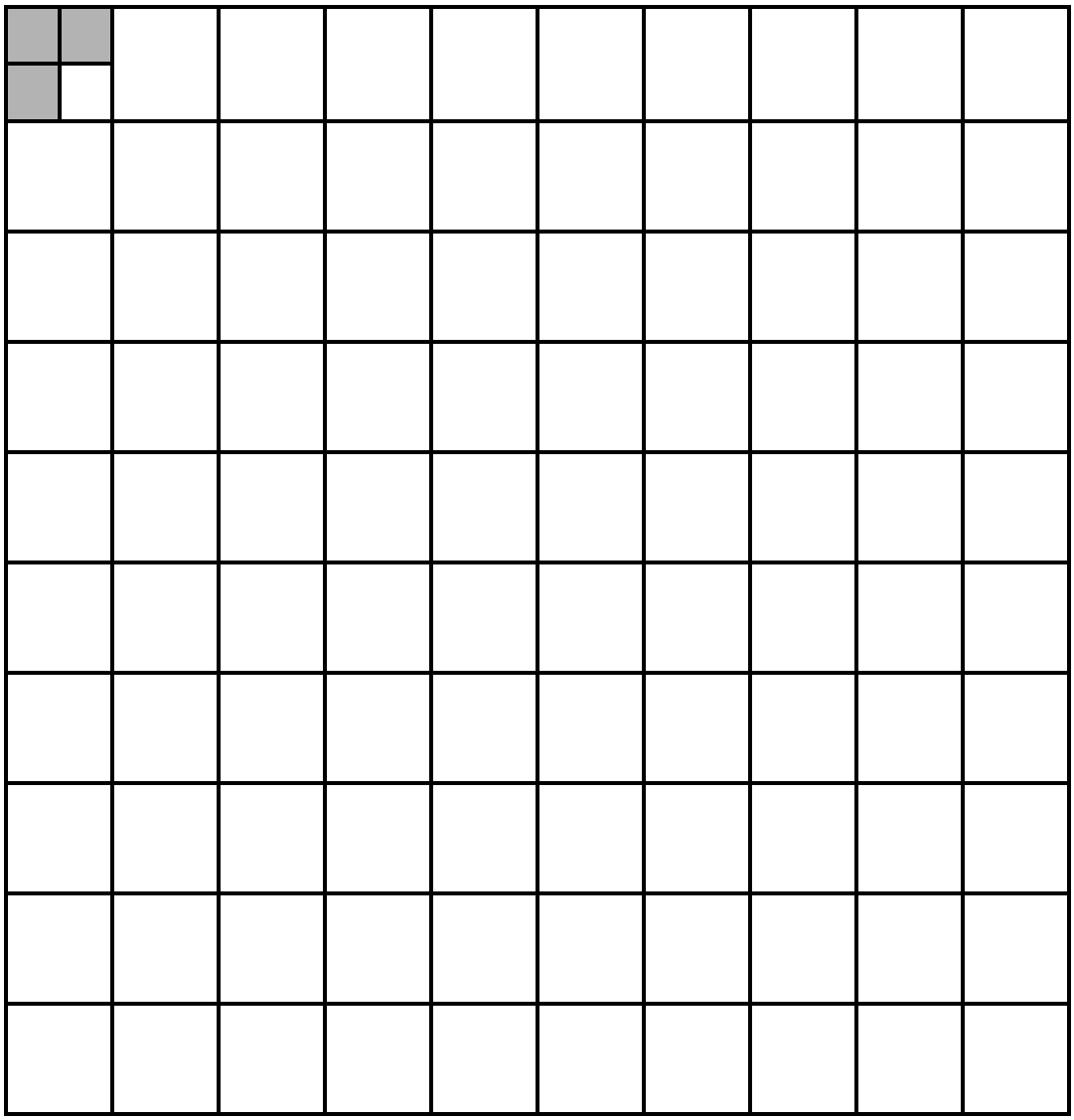
Outcome	Before Instruction	After Instruction	Evidence
▪ Represent fractional percents between 1% and 100% on a hundreds grid.	❒ Unable ❒ With assistance ❒ Consistently ❒ Confidently and consistently	❒ Unable ❒ With assistance ❒ Consistently ❒ Confidently and consistently	
▪ Convert fractions to decimals.	❒ Unable ❒ With assistance ❒ Consistently ❒ Confidently and consistently	❒ Unable ❒ With assistance ❒ Consistently ❒ Confidently and consistently	
▪ Convert fractions to percents.	❒ Unable ❒ With assistance ❒ Consistently ❒ Confidently and consistently	❒ Unable ❒ With assistance ❒ Consistently ❒ Confidently and consistently	
▪ Converts decimals to fractions.	❒ Unable ❒ With assistance ❒ Consistently ❒ Confidently and consistently	❒ Unable ❒ With assistance ❒ Consistently ❒ Confidently and consistently	
▪ Convert decimals to percents.	❒ Unable ❒ With assistance ❒ Consistently ❒ Confidently and consistently	❒ Unable ❒ With assistance ❒ Consistently ❒ Confidently and consistently	
▪ Convert percents to fractions.	❒ Unable ❒ With assistance ❒ Consistently ❒ Confidently and consistently	❒ Unable ❒ With assistance ❒ Consistently ❒ Confidently and consistently	
▪ Convert percents to decimals.	❒ Unable ❒ With assistance ❒ Consistently ❒ Confidently and consistently	❒ Unable ❒ With assistance ❒ Consistently ❒ Confidently and consistently	
▪ Solve problems involving percents.	❒ Unable ❒ With assistance ❒ Consistently ❒ Confidently and consistently	❒ Unable ❒ With assistance ❒ Consistently ❒ Confidently and consistently	

BLM 8.N.3.3: Percent Grids



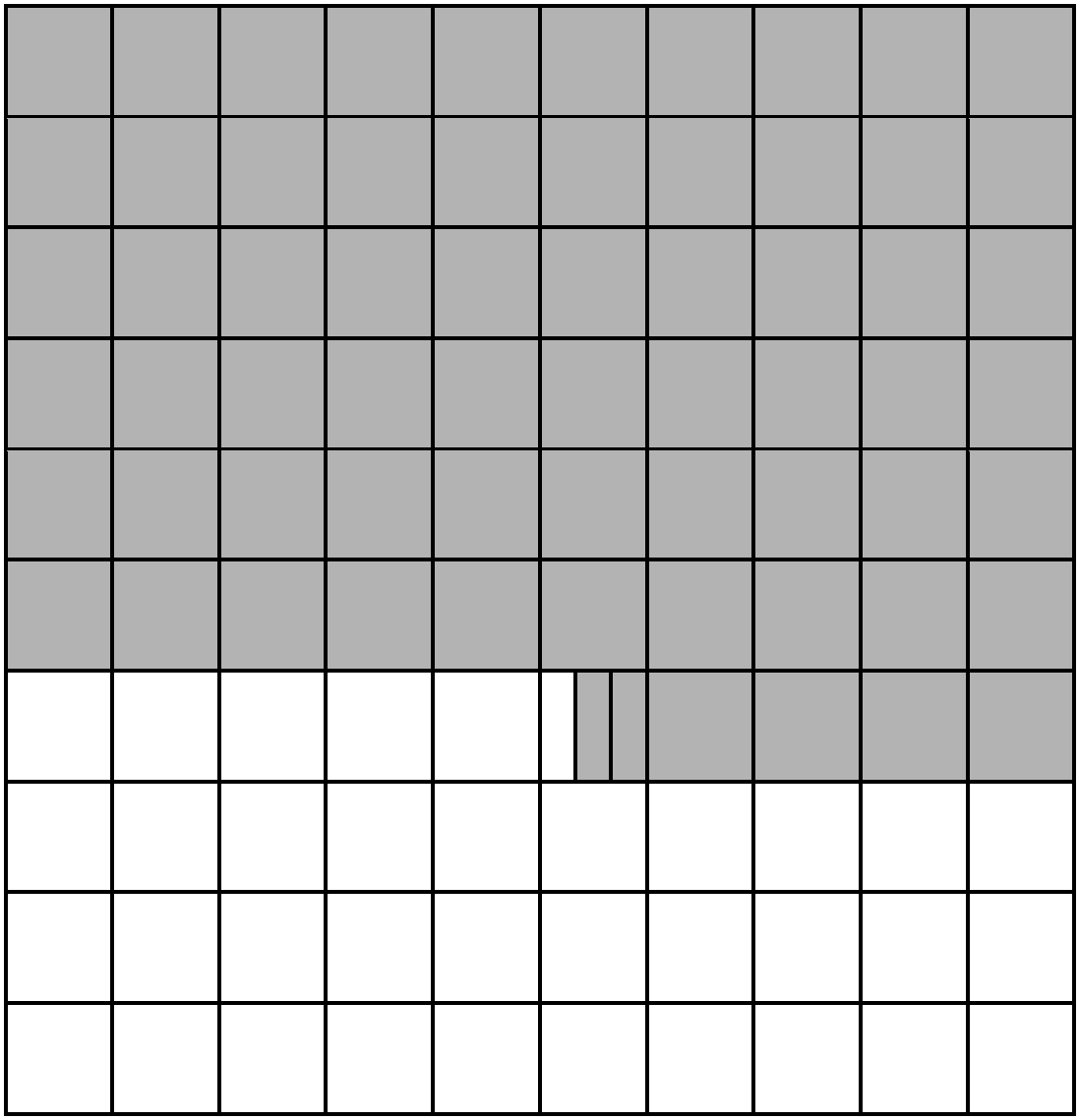
continued

BLM 8.N.3.3: Percent Grids (continued)



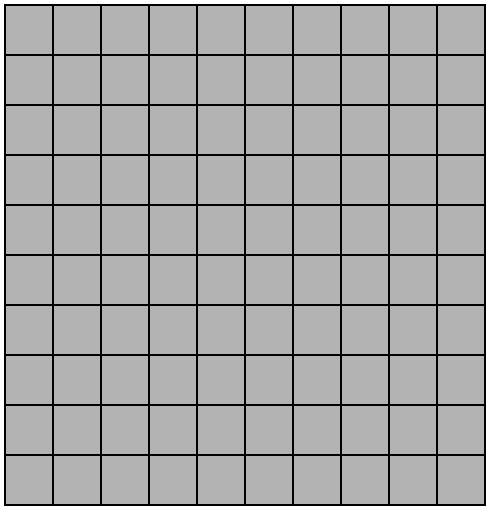
continued

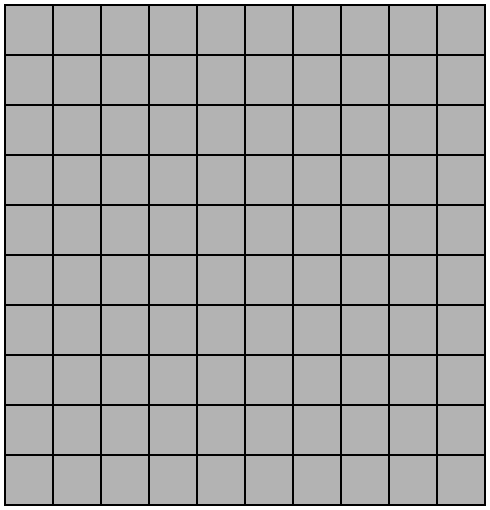
BLM 8.N.3.3: Percent Grids (continued)

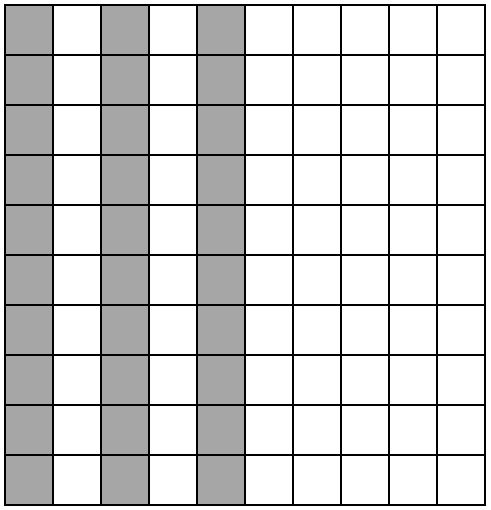


continued

BLM 8.N.3.3: Percent Grids (continued)







BLM 8.N.3.4: Percent Scenarios

Explain what the following scenario statements mean and give reasons for your explanations.

1. In the month of June, the school canteen sold 300% of the frozen yogourt it sold in the month of May.

2. The Winnipeg Blue Bombers handed out T-shirts to the first 100 fans at the football game. This represented $\frac{1}{2}$% of the fans who attended that game.

3. The school reached 150% of its goal in collecting food items for the local food hamper.

4. Brendan scored 84.5% on his test.

BLM 8.N.3.5: Percent Savings

The following problems involve percent savings. Answer the questions, showing your work on chart paper.

1. The regular price of crackers is $2.99. The crackers are on sale for $1.99. To the nearest tenth of a percent, what is the percent savings?

2. Pudding four-packs are on sale for $1.29. The regular price is $1.89. To the nearest tenth of a percent, what is the percent savings?

3. Jumbo roll, two-ply bathroom tissue is on sale for $12.99. The regular price is $17.99. To the nearest tenth of a percent, what is the percent savings?

4. The regular price of diapers is $18.99. They are on sale for $14.99. To the nearest tenth of a percent, what is the percent savings?

5. Liquid soap is on sale for $1.79. The regular price is $2.49. To the nearest tenth of a percent, what is the percent savings?

6. Cookies are on sale for $2.00. The regular price is $3.39. To the nearest tenth of a percent, what is the percent savings?

7. The regular price of soup is $1.69 each. The soup is on sale at four cans for $5.00. To the nearest tenth of a percent, what is the percent savings for one can of soup?

8. Boxes of chocolates are on sale for $12.99 for 725 g. The regular price is $17.99. To the nearest tenth of a percent, what is the percent savings?

9. Instant coffee is on sale for $3.49. The regular price is $4.99. To the nearest tenth of a percent, what is the percent savings?

10. Candles are on sale for $4.97. The regular price is $5.99. To the nearest tenth of a percent, what is the percent savings?

BLM 8.N.3.6: Final Cost

Solve the following problems, showing your work on chart paper. In calculating the final cost, assume that PST is 8% and GST is 5%.

1. Denim jeans cost $14.97. After PST and GST are included, what is the final cost of the jeans?

2. A gaming system bundle costs $199.99. After PST and GST are included, what is the final cost of the bundle?

3. Another gaming system bundle costs $299.99. After PST and GST are included, what is the final cost of the bundle?

4. A cardigan costs $24.97. After PST and GST are included, what is the final cost of the cardigan?

5. A leather purse costs $39.97. After PST and GST are included, what is the final cost of the purse?

6. A men's long-sleeved shirt costs $29.97. After PST and GST are included, what is the final cost of the shirt?

7. A hoodie costs $24.97. After PST and GST are included, what is the final cost of the hoodie?

8. A child's snowsuit costs $74.97. After PST and GST are included, what is the final cost of the snowsuit?

9. Leather gloves cost $19.97. After PST and GST are included, what is the final cost of the gloves?

10. Men's skate shoes cost $19.97. After PST and GST are included, what is the final cost of the skate shoes?

BLM 8.N.3.7: Percent Increase and Decrease

Solve the following problems, showing your work on chart paper.

1. The town of Mercury had a population of 15 000 people two years ago. Last year, the population grew 10%, and this year, the population grew another 15%. Elliot said that to determine the current population, you would have to calculate the percent increase separately. Max said you could combine the two percents to get the current population. Who is correct? Explain.

2. Scott wants to travel to Jupiter City. He started calling around to see who had the best deal for a ticket to Jupiter City. Outer Sky Travel had a seat sale last week in which tickets to Jupiter City were 15% off the regular price of $135. They will now take an additional 10% off the sale price. Galaxy Way Travel also has a seat sale. Tickets are 25% off the regular price of $135. Which travel agency has the better seat sale for a ticket to Jupiter City?

BLM 8.N.4.1: Ratio Pre-Assessment

1. Use pattern blocks to represent the following ratios. Show your work to the teacher before moving on to the next question.

   a. 3 trapezoids to 5 equilateral triangles

   b. 4 rhombuses to 6 equilateral triangles

2. Use diagrams to represent the following ratios.

   a. 7 *X*s to 3 *O*s

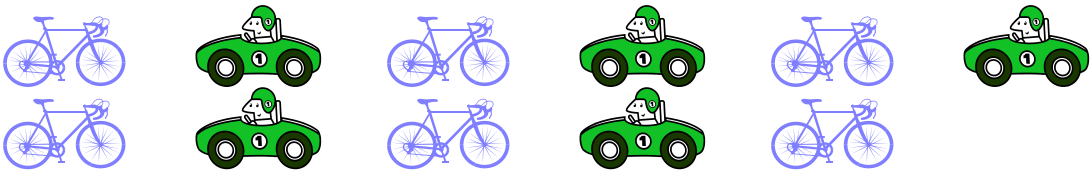
   b. 4 *O*s to 5 *X*s

3. Represent the following ratios symbolically.

   a. dogs to cats

   b. apples to bananas

   c. bikes to cars



4. Solve the following problem. Show your thinking.

   If 1 out of every 4 students at Boulder School rides a bike to school, how many bikes are at the bike rack during the day if there are 720 students who attend Boulder School?

BLM 8.N.4.2: Meaning of $\frac{a}{b}$?

Read each of the following scenarios and determine whether the fraction $\frac{a}{b}$ is representing a fraction, rate, ratio, quotient, or probability.

You must justify your thinking, record your thinking on chart paper, and be prepared to share your thinking with the class.

1. Jeremy has a $\frac{3}{6}$ chance of rolling an even number on a six-sided regular number cube.

2. Samantha travelled $\frac{27\text{ km}}{3\text{ h}}$ on her bike.

3. Having three girls and five boys on the intramural volleyball team is shown as $\frac{3}{5}$.

4. Pedro scored $\frac{7}{10}$ on his math quiz.

5. John ate $\frac{3}{4}$ of a bag of chips.

BLM 8.N.4.3: Problem Solving

Solve the following problems. Record your problem-solving process on chart paper, and be prepared to explain your results.

1. Jordan divided her pie into eighths. Nicole divided her pie into fourths. Jordan's family ate two-eighths of her pie. How many fourths of Nicole's pie would have to be eaten to result in an equivalent amount of pie being eaten?

2. If the ratio of basketball players to volleyball players at the Middle Years school is 5:3 and there are 112 basketball players, how many volleyball players are there?

3. It was recently estimated by the Snoop Dog Pound that unregistered Snoop dogs outnumber registered ones by about eight to five. If there are a total of 2 054 Snoop dogs, about how many of them are registered?

4. Kaden has just started his collection of plastic cars and obtained 20 new plastic cars. Eric has 60 old plastic cars. Derek has 100 old plastic cars. If all their collections were combined, what would be the ratio of old plastic cars to new plastic cars? Write your answer in ratio form. Express your answer in its simplest form. Explain why it might be nice to have the ratio in its simplest form.

5. SunnyTown had a great hockey team last year. The players outperformed their opponents in almost every category of play. One of their more impressive statistics was that, on average, they outscored their opponents by 3:1 in every game they played. If they scored an average of 6 goals per game, what was the average number of points scored by their opponents per game?

6. Water is flowing into your sump pit at a rate of 3 cm per minute. The sump pump pumps it out at a rate of 1 mm per second. Will the pump be able to keep the water out of your basement? Explain.

BLM 8.N.6.1: Mixed Numbers and Improper Fractions

Improper Fractions to Mixed Numbers

Choose **one** of the following fractions and show, using words and diagrams, how to convert an improper fraction to a mixed number. Show that your answer is reasonable.

$\frac{8}{5}$

$\frac{15}{6}$

$\frac{23}{7}$

Mixed Numbers to Improper Fractions

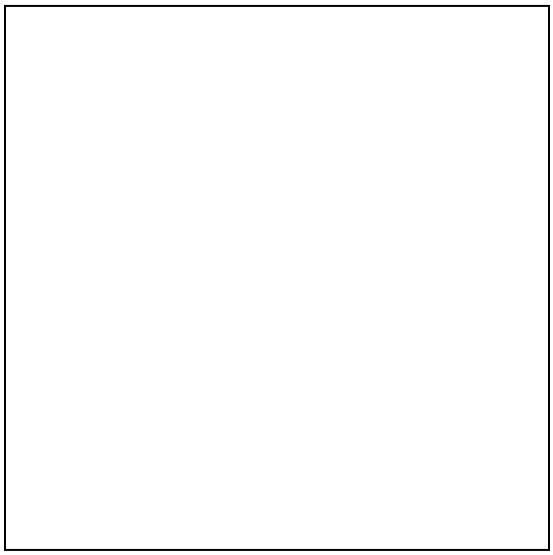
Choose **one** of the following mixed numbers and show, using words and diagrams, how to convert a mixed number to an improper fraction. Show that your answer is reasonable.

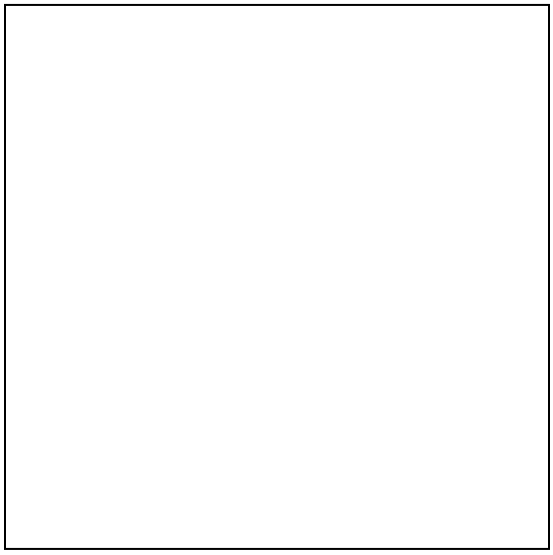
$2\frac{2}{3}$

$3\frac{4}{5}$

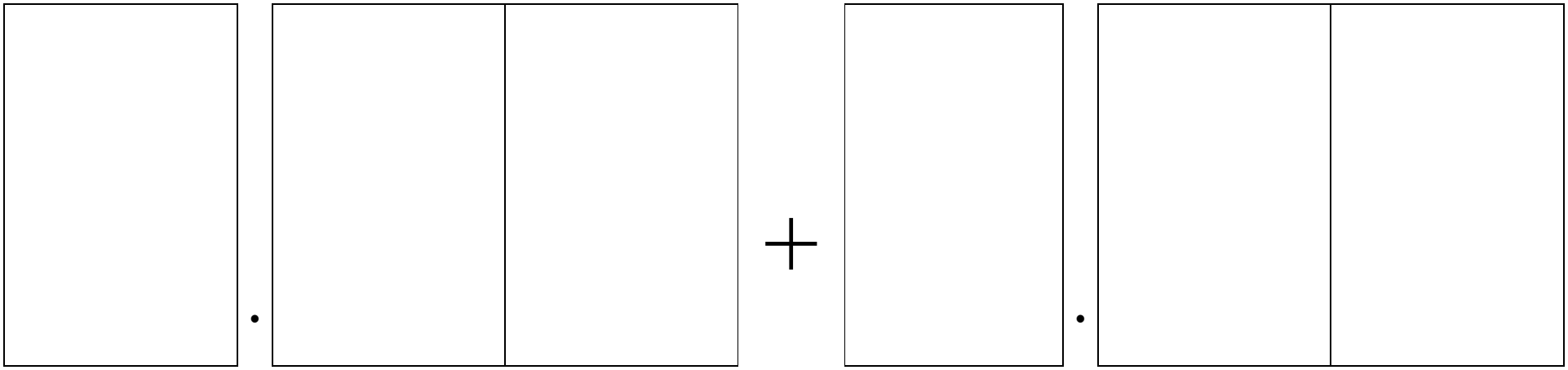
$4\frac{1}{4}$

BLM 8.N.6.2: Mixed Number War





BLM 8.N.6.3: Decimal Addition Wild Card



Round	My Numbers	My Partner's Numbers
E.g.,	6 . 3 2 + 1 . 7 7 = 8 . 0 9	5 . 8 4 + 3 . 1 9 = 9 . 0 3
1	. + . = .	. + . = .
2	. + . = .	. + . = .
3	. + . = .	. + . = .
4	. + . = .	. + . = .
5	. + . = .	. + . = .
6	. + . = .	. + . = .
7	. + . = .	. + . = .
8	. + . = .	. + . = .
9	. + . = .	. + . = .

BLM 8.N.6.4: Fraction Multiplication and Division

Division	Multiplication	Pattern
$\frac{1}{2} \div \frac{1}{2} =$	$\frac{1}{2} \bullet \frac{2}{1} =$	
$\frac{3}{4} \div \frac{2}{4} =$	$\frac{3}{4} \bullet \frac{4}{2} =$	
$\frac{4}{5} \div \frac{3}{5} =$	$\frac{4}{5} \bullet \frac{5}{3} =$	
$\frac{5}{6} \div \frac{4}{6} =$	$\frac{5}{6} \bullet \frac{6}{4} =$	
$\frac{5}{8} \div \frac{3}{8} =$	$\frac{5}{8} \bullet \frac{8}{3} =$	
$\frac{7}{10} \div \frac{2}{10} =$	$\frac{7}{10} \bullet \frac{10}{2} =$	

BLM 8.N.6.5: Multiplying and Dividing Proper Fractions, Improper Fractions, and Mixed Numbers

1. Multiply the following fractions symbolically.

   a. $\frac{1}{4} \cdot \frac{1}{6} =$ b. $\frac{4}{5} \cdot \frac{3}{8} =$

2. Multiply the following fractions symbolically.

   a. $\frac{4}{3} \cdot \frac{5}{2} =$ b. $\frac{14}{10} \cdot \frac{2}{5} =$

3. Multiply the following fractions symbolically.

   a. $3\frac{3}{5} \cdot 3\frac{5}{6} =$ b. $4\frac{1}{2} \cdot 2\frac{2}{3} =$

4. Divide the following fractions symbolically.

   a. $\frac{1}{2} \div \frac{2}{3} =$ b. $\frac{1}{5} \div \frac{3}{8} =$

5. Divide the following fractions symbolically.

   a. $\frac{18}{5} \div \frac{5}{2} =$ b. $\frac{1}{5} \div \frac{3}{8} =$

6. Divide the following fractions symbolically.

   a. $7\frac{1}{3} \div 4\frac{2}{3} =$ b. $2\frac{1}{10} \div 3\frac{2}{5} =$

BLM 8.N.6.6: Fraction Operations

1. Cyril is making cereal squares for his class party. His recipe calls for $\frac{1}{2}$ cup margarine to make 12 squares. How much margarine will Cyril need if there are 36 people in his class (including students, the teacher, and educational assistants)?

   a. We believe we need to _____ in order to solve this problem. (Fill in the blank with one of the operations.)

   b. We think we need to _____ because _____

   c. Our solution is: (Show your work below. Include all steps.)

   d. We think our solution is reasonable because _____

2. Angie's recipe for peanut butter cookies makes 24 cookies and uses $\frac{2}{3}$ cup peanut butter. The only person in Angie's family who likes peanut butter cookies is Angie, so she only wants to make 6 cookies. How much peanut butter will she need?

   a. We believe we need to _____ in order to solve this problem. (Fill in the blank with one of the operations.)

   b. We think we need to _____ because _____

   c. Our solution is: (Show your work below. Include all steps.)

   d. We think our solution is reasonable because _____

continued

BLM 8.N.6.6: Fraction Operations (continued)

3. One-third of the class made bread with no sugar, one-third of the class made bread with no yeast, and one-third of the class made bread with all ingredients. The class consisted of 63 students, of which five-sevenths were boys. The teacher chose the three groups to be as equal as possible in their boy–girl ratio. How many boys and girls were assigned to each kitchen?

   a. We believe we need to _____ in order to solve this problem. (Fill in the blank with one of the operations.)

   b. We think we need to _____ because _____

   c. Our solution is: (Show your work below. Include all steps.)

   d. We think our solution is reasonable because _____

4. Lindsay and Hailey each made a doghouse for their new puppies and then painted it. Lindsay used $1\frac{1}{4}$ cans of paint. Hailey used $2\frac{1}{3}$ cans of paint. How many times as much paint did Hailey use as Lindsay?

   a. We believe we need to _____ in order to solve this problem. (Fill in the blank with one of the operations.)

   b. We think we need to _____ because _____

   c. Our solution is: (Show your work below. Include all steps.)

   d. We think our solution is reasonable because _____

BLM 8.N.7.1: Integer Pre-Assessment

Concept	Activity	Pictorial Representation and Explanation
Zero principle	Model + 4 and –2 in three different ways.	
Adding integers with like signs	Model (+3) + (+5) and (–2) + (–4)	
Adding integers with opposite signs	Model (+4) + (–3) and (–5) + (+2)	

continued

BLM 8.N.7.1: Integer Pre-Assessment (continued)

Concept	Activity	Pictorial Representation and Explanation
Subtracting integers with like signs when the first term is farther from zero than the second term	Model (+6) – (+2) and (–5) – (–3)	
Subtracting integers with like signs when the first term is closer to zero than the second term	Model (+2) – (+5) and (–1) – (–3)	
Subtracting integers with opposite signs	Model (–2) – (+3) and (+4) – (–5)	

BLM 8.N.7.2: Solving Problems with Integers (A)

Solve the following problems. Use integers to reflect each number. Be sure to show your thinking.

1. The morning temperature on October 21 in Winnipeg was 4°C. The temperature started to drop continuously 3°C each hour for the next five hours. What was the total change in temperature? What was the final temperature?

2. It was a warm spring day in Manitoba and a snow bank along the Trans Canada Highway melted 4 cm each hour. If the snow continued to recede at the same rate, how far would it have receded after 7 hours?

3. Samuel liked to play arcade games with his friends. Samuel played 10 different games one Saturday night. Each game cost $2.00. How much money did Samuel spend that night?

4. Pete hired Alvin's Drilling to drill a well on his property. If Alvin's Drilling drilled at a rate of 2 m/min. and had the well drilled after 90 minutes, how deep would the well be?

5. Jordy donates $10.00 per month to her local food bank. How much does Jordy donate to the food bank in one year?

BLM 8.N.7.3: Solving Problems with Integers (B)

Solve the following problems. Use integers to reflect each number. Be sure to show your thinking.

1. Barry goes to movies only on Tuesday nights because you can see a movie and get popcorn and a drink all for $10. Barry borrows $10 from his mom every Tuesday to go to the movies. If Barry owes his mom $80 for the movies he has gone to, how many movies did he see?

2. Sandy and her four sisters decided to go together to purchase their mom a birthday present. The gift, taxes included, totalled $120, which Sandy put on her credit card. How much does each sister owe Sandy for their mom's birthday present?

3. Joanne hired Alvin's Drilling to drill a well on her property. If Alvin's Drilling took 60 minutes to drill a 240 m well, what was the rate of drilling?

4. Jessica borrowed $75 from her dad to purchase a concert ticket. She gets paid at work every two weeks. If she pays her dad $15 a paycheque, how many pay periods will it take Jessica to pay off her $75 debt?

5. Jordan and Steve love to scuba dive. They went diving off the coast of Cancun. If they took 15 minutes to dive 90 metres, how far did they dive per minute?

BLM 8.N.7.4: Solving Problems with Integers (C)

Solve the following problems. Use integers to reflect each number. Be sure to show your thinking.

1. The daily high temperatures for Winnipeg for the first seven days of 2010 were:
   –21.6°C, –22.4°C, –17.1°C, –15.0°C, –13.1°C, –13.7°C, –21.1°C.
   What was the mean temperature for the first week of January 2010 in Winnipeg?

2. The unemployment rate for Manitoba and Canada from 2002 to 2008 is listed below. What is the mean unemployment rate for Manitoba and Canada over the seven years listed?

Unemployment Rate (%)—Seasonally Adjusted*

	2002	2003	2004	2005	2006	2007	2008
Manitoba	5.1%	5.0%	5.3%	4.8%	4.3%	4.4%	4.2%
Canada	7.7%	7.6%	7.2%	6.8%	6.3%	6.0%	6.1%

*Source: Manitoba Bureau of Statistics, August 2009. Cited on the Manitoba Entrepreneurship, Training and Trade website at <www.gov.mb.ca/ctt/invest/busfacts/economy/unemploy_rate.html> (13 Oct. 2010). Used with permission.

3. Lucas earns $30 a week in the winter from shovelling snow. Every week he spends $10, saves $15, and gives the rest to his mom to repay a $90 loan. After 16 weeks, how much has Lucas spent, how much has he saved, and how much does he still owe his mom?

4. Patricia hired a taxi to take her to the airport. Patricia had to pay the driver a $10 fee just for renting the taxi and another $1 per km to get from her house to the airport. If Patricia lives 12 kilometres from the airport, how much did she have to pay the taxi driver?

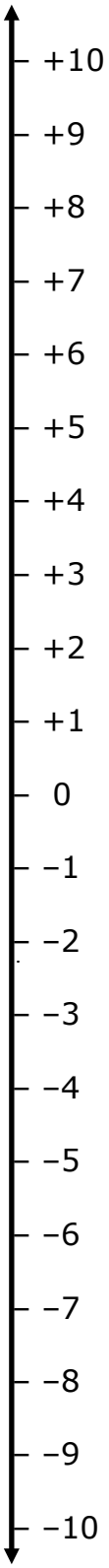
5. At a used book sale, Jennifer sold 3 of her books for $2.00 each, 4 of her books for $3.00 each, and her atlas for $5.00. She also bought 6 books for $1.50 each. How much money did Jennifer have when she left the book sale?

BLM 8.N.7.5: Number Line Race

Numbers Rolled	Numbers Found

continued

BLM 8.N.7.5: Number Line Race (continued)



BLM 8.PR.1.1: Patterns Pre-Assessment

1. Draw and label the next three figures of the following pattern.

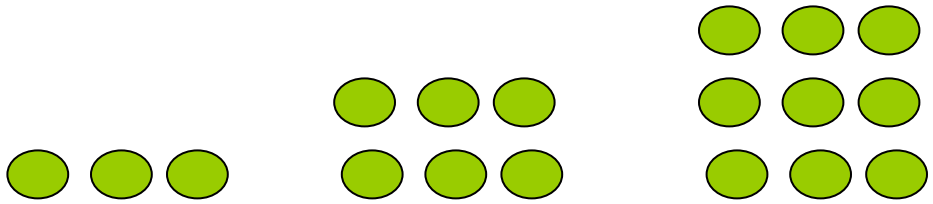


Figure 1 Figure 2 Figure 3

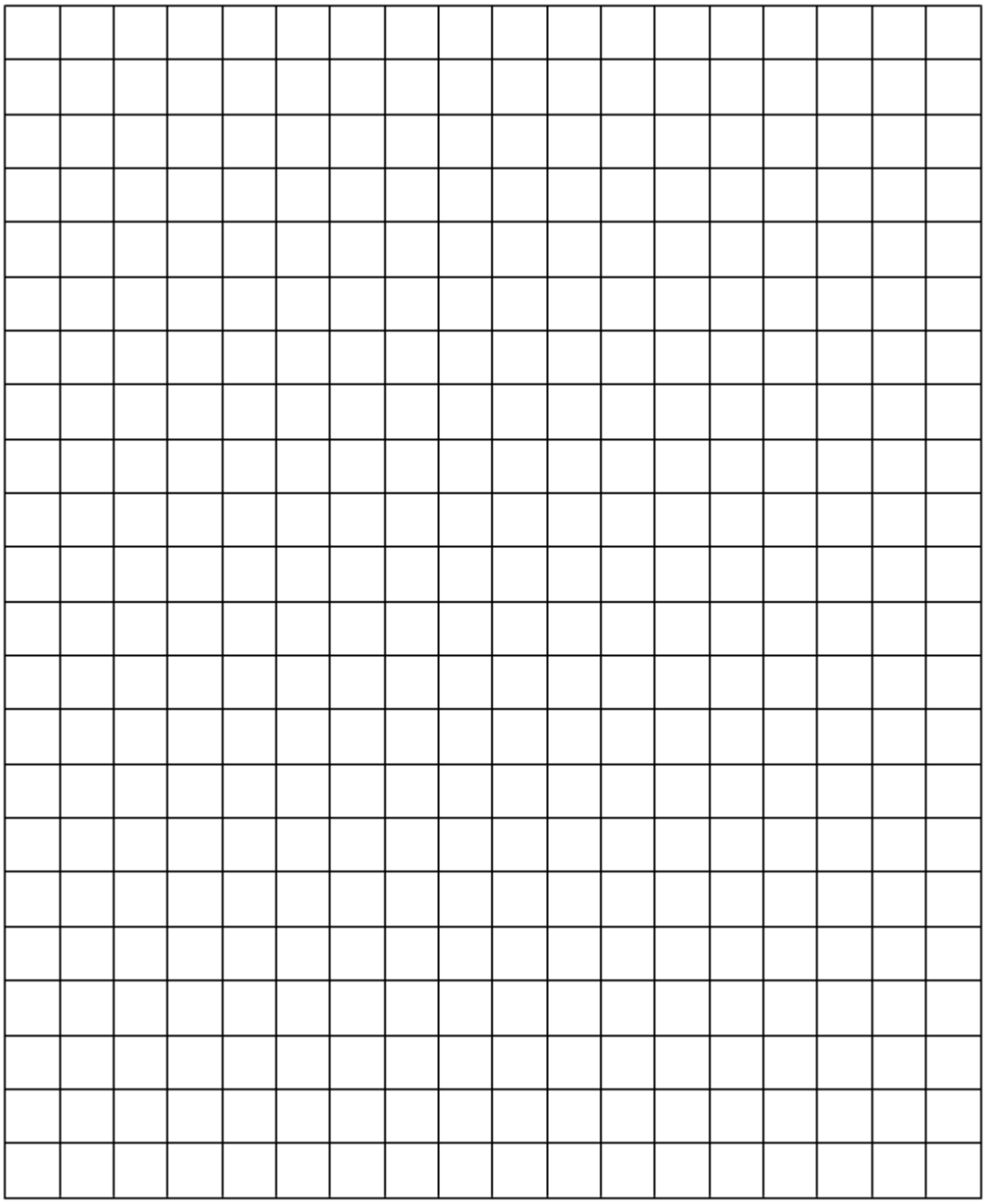
2. Describe the pattern.

3. Construct a table of values from the pattern.

continued

BLM 8.PR.1.1: Patterns Pre-Assessment (continued)

4. Construct a graph for the pattern.



5. Write an algebraic expression for the pattern.

6. Use an equation to find the number of dots in the 15th figure.

BLM 8.PR.1.2: Determine the Missing Values

Determine the missing values in the ordered pairs.

1. Fill in the missing values in the following table of values.

0	1		3	
0	1	4		

2. For the equation $y = -2x + 3$, find the missing values in the following ordered pairs.

   a. $(0, y)$ b. $(x, 1)$ c. $(5, y)$ d. $(x, -1)$

3. Fill in the missing values in the following table of values.

1	3
	7
4	
5	19

4. For the equation $y = 3x + 1$, find the missing values in the following ordered pairs.

   a. $(0, y)$ b. $(x, 1)$ c. $(5, y)$ d. $(x, -1)$

BLM 8.PR.1.3: Break the Code

What do you say when you see an empty parrot cage?

Use the following equation, the ordered pairs, and the code below to help answer the question.

$$y = 2x - 3$$

_____	_____	_____	_____	_____	_____	_____	_____					
$(x, 51)$	$(14, y)$	$(11, y)$	$(x, 87)$	$(6, y)$	$(x, 47)$	$(x, 43)$						

A	B	C	D	E	F	G	H	I	J	K	L	M
–8	–1	1	3	35	–7	9	21	–13	15	7	19	–21
N	O	P	Q	R	S	T	U	V	W	X	Y	Z
23	25	27	–9	31	53	–5	37	6	14	43	45	–10

BLM 8.PR.1.4: Linear Relations

For each of the following problems, create a table of values to show the relationship, and construct a graph from the ordered pairs.

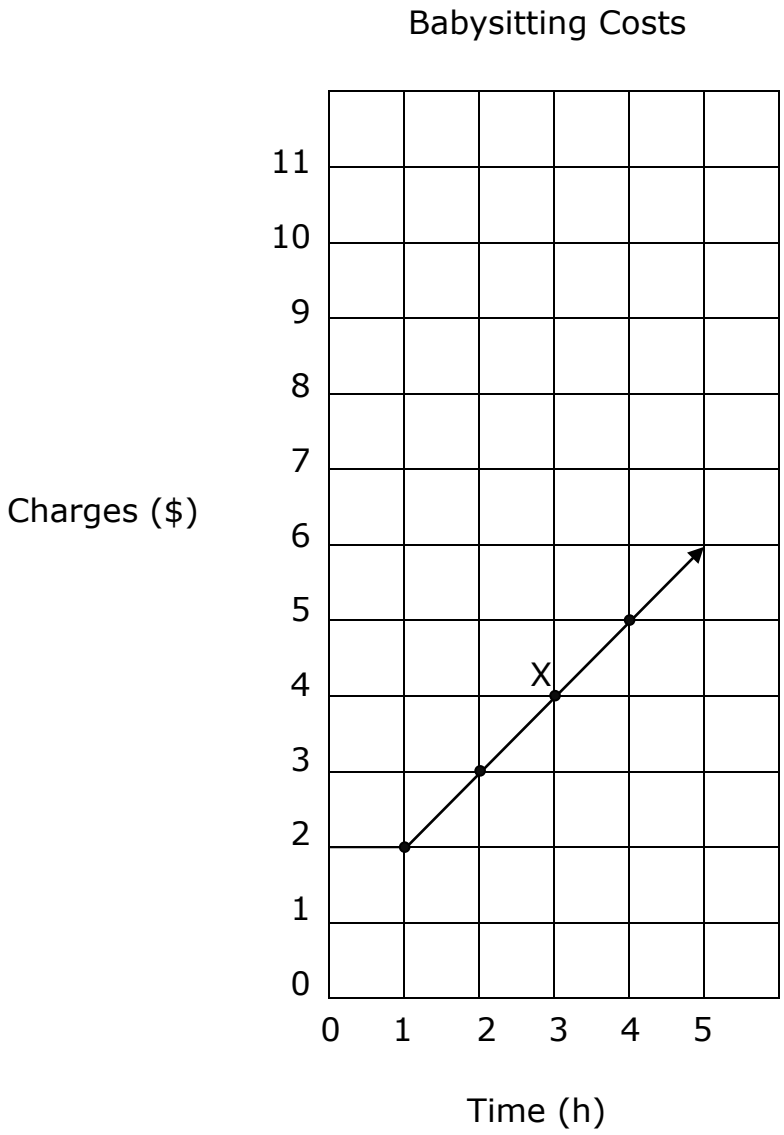
1. Grapefruits are $1.00 per grapefruit.

2. Movie tickets are $9.00 per ticket.

3. $y = 2x + 4$

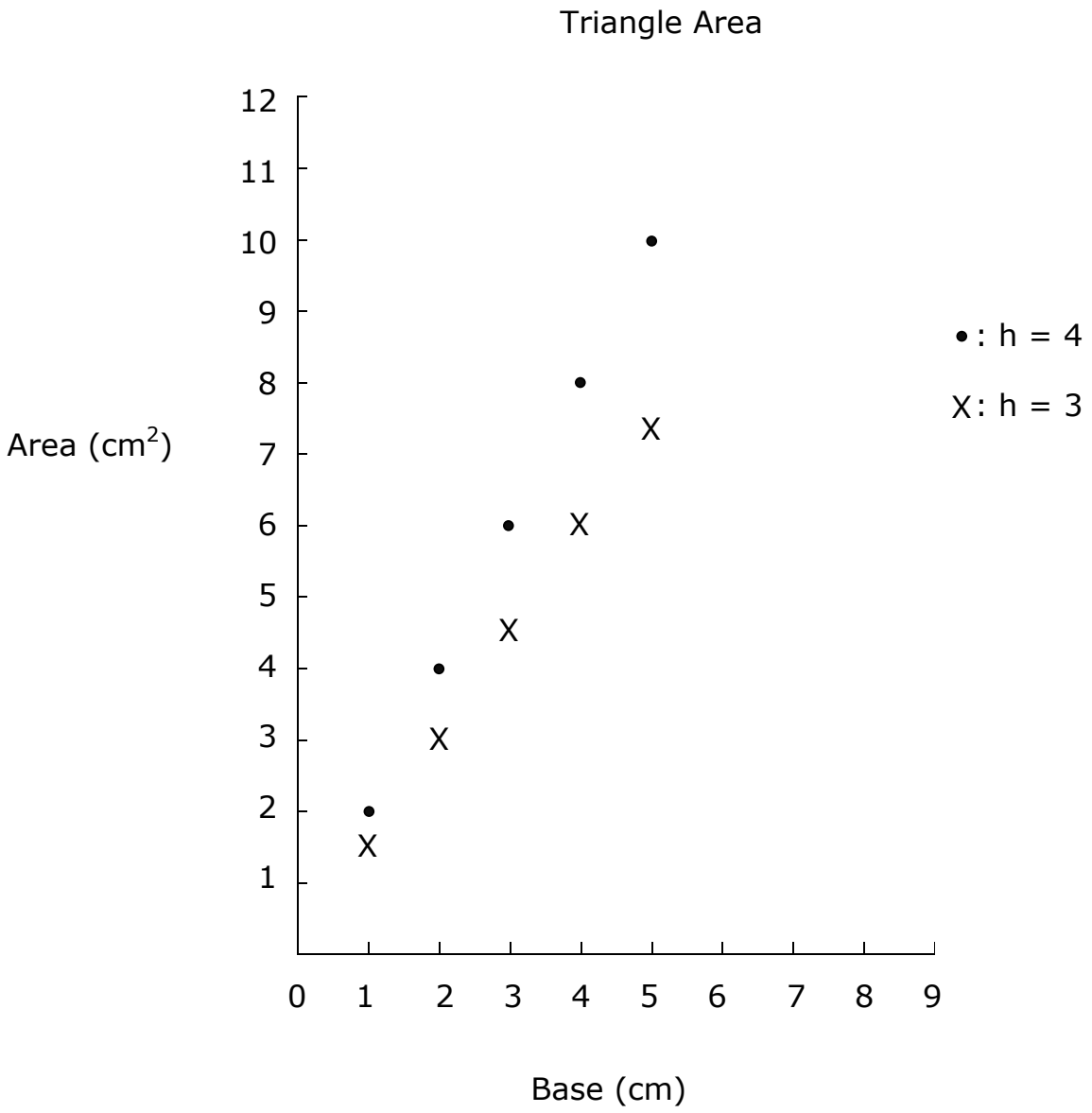
4. $y = \frac{x}{2} + 3$

BLM 8.PR.1.5: Graphs



continued

BLM 8.PR.1.5: Graphs (continued)



BLM 8.PR.2.1: Algebra Pre-Assessment

Complete the following table. Remember to check your work.

Problem	Concrete Representation and Solution (When you have completed this column, show it to the teacher before moving on to the next two columns.)	Pictorial Representation and Solution	Symbolic Representation and Solution
$n + 7 = 15$			
$t - 4 = 3$			
$4x = 12$			
$\frac{p}{3} = 2$			

BLM 8.PR.2.2: Solving Equations Symbolically

Solve the following equations.

Equation	Solution	Check
$\frac{-x}{4} = -5$		
$6t = -54$		
$14n + 12 = 40$		
$\frac{3b}{-5} = -6$		
$4a - 5 = 23$		

continued

BLM 8.PR.2.2: Solving Equations Symbolically (continued)

Equation	Solution	Check
$-7(n + 4) = -42$		
$4(s - 3) = -4$		
$5(b + 13) = 25$		

BLM 8.PR.2.3: Algebra Match-up

$y + 4 = 9$	$y = 5$	$2 = 2(y + 4)$	$y = -3$
$9 + y = 2$	$y = -7$	$-y + 3 = 4 - 8$	$y = 7$
$3y = 12$	$y = 4$	$-(5 + y) = 7$	$y = -12$
$-2y + 1 = 5$	$y = -2$	$5 = 3y + 8$	$y = -1$

continued

BLM 8.PR.2.3: Algebra Match-up (continued)

$y + 3 = 4$	$y = 1$	$4 = 2(y - 4)$	$y = 6$
$13 + y = 9$	$y = -4$	$y + 5 = 1 - 9$	$y = -13$
$-3y = 15$	$y = -5$	$-(3 + y) = 8$	$y = -11$
$-2y + 19 = 3$	$y = 8$	$8 = 3y + 8$	$y = 0$

BLM 8.PR.2.4: Analyzing Equations

Analyze the following solutions to determine whether they are correct or incorrect.
If a solution is incorrect, identify the error, and then rewrite the solution on chart paper showing the correct method for solving the equation.

$$-8 = \frac{m}{-10}$$
$$-8 \times 10 = \frac{m}{-10} \times 10$$
$$-80 = m$$

$$6p + 15 = 33$$
$$6p + 15 - 15 = 33$$
$$\frac{6p}{6} = \frac{33}{6}$$
$$p = 5.5$$

$$-5(x + 3) = +10$$
$$-5x + 15 = 10$$
$$-5x + 15 - 15 = 10 - 15$$
$$\frac{-5x}{-5} = \frac{-5}{-5}$$
$$x = 1$$

$$-84 = 12d$$
$$\frac{-84}{12} = \frac{12d}{12}$$
$$-7 = d$$

BLM 8.PR.2.5: Analyzing Equations Assessment

Analyze the following solutions to determine whether they are correct or incorrect.
If a solution is incorrect, identify the error, and then rewrite and solve the equation correctly.

$$7(n-6) = -70$$
$$7n - 42 = -70$$
$$7n - 42 + 42 = -70$$
$$\frac{7n}{7} = \frac{-70}{7}$$
$$n = -10$$

$$\frac{x}{-4} + 3 = 5$$
$$\frac{x}{-4} + 3 - 3 = 5 - 3$$
$$\frac{x}{-4} = 2$$
$$\frac{x}{-4}(-4) = 2(-4)$$
$$x = -8$$

$$-3x - 4 = -10$$
$$-3x - 4 + 4 = -10 + 4$$
$$\frac{-3x}{-3} = \frac{-14}{-3}$$
$$x = 4.6$$

BLM 8.PR.2.6: Solving Problems Using a Linear Equation

Determine methods of solving the following problems using a linear equation. Be prepared to present your solution methods to the class.

1. Joe is 16 years older than Bill. Sam is the same age as Bill. Their combined age is 79. How old are Joe, Bill, and Sam?

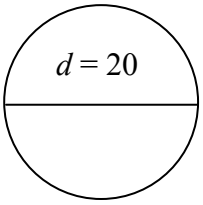
2. Olympia High School sold advance tickets to their high school musical for $3.00 per ticket. Tickets purchased at the door were sold for $5.00 per ticket. How many tickets were sold in advance if 20 tickets were sold at the door and $340.00 were collected in total?

3. Jenna has two jobs. At her job as a word processor, she earns $8.50/h. At her job as a cashier, she makes $8.75/h. Jenna worked 15 hours as a word processor this week and earned $140.00 as a cashier. If she earned $267.50 this week, how many hours did she work as a cashier?

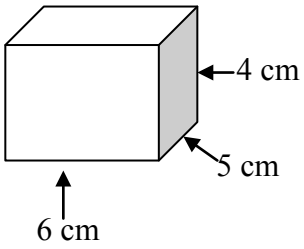
BLM 8.SS.2.1: Measurement Pre-Assessment

Calculate the following. Show your thinking.

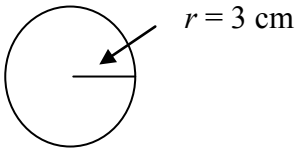
Area = _____



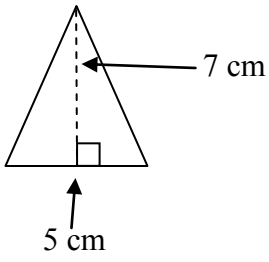
Circumference = _____



Volume = _____

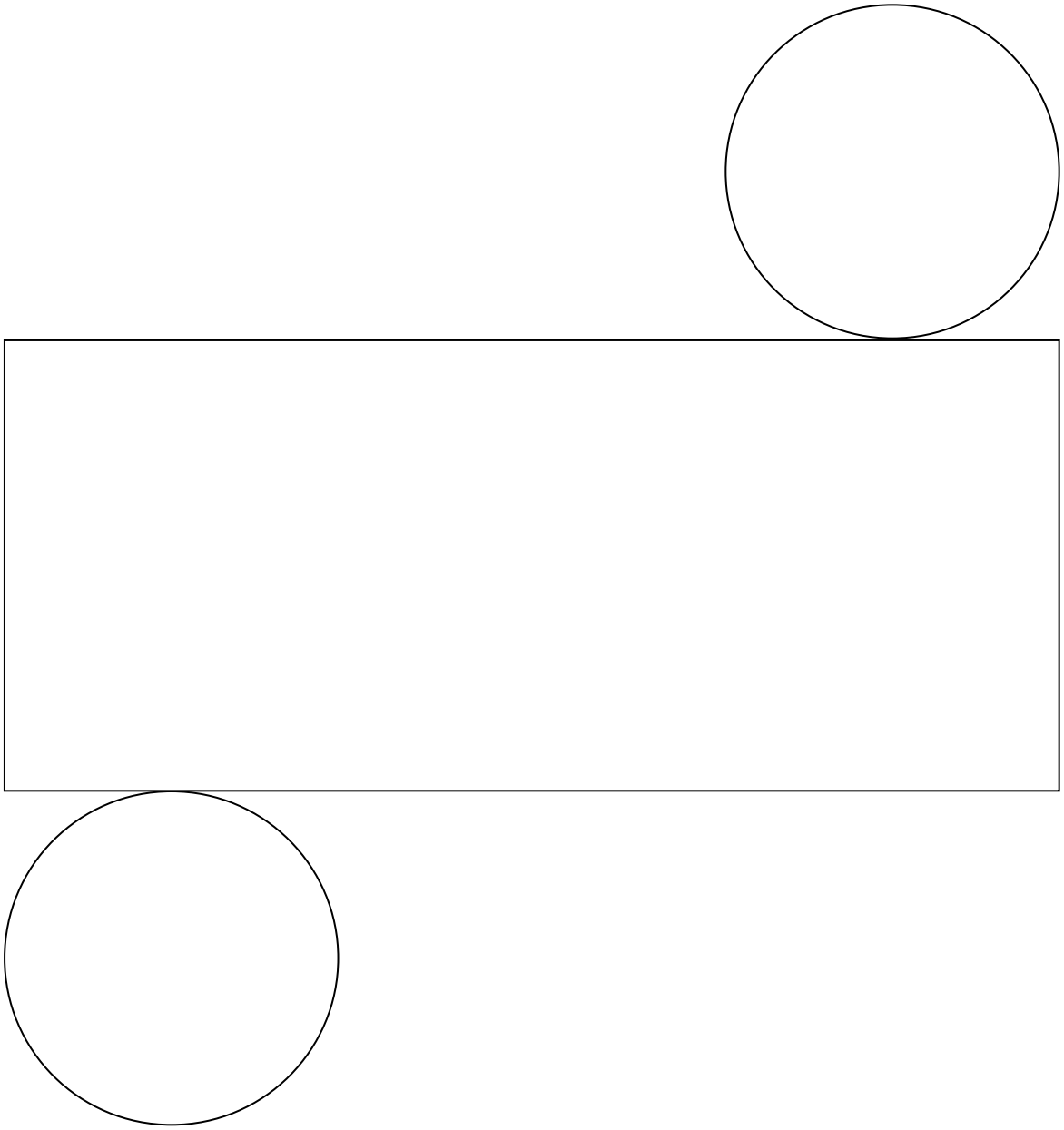


Area = _____



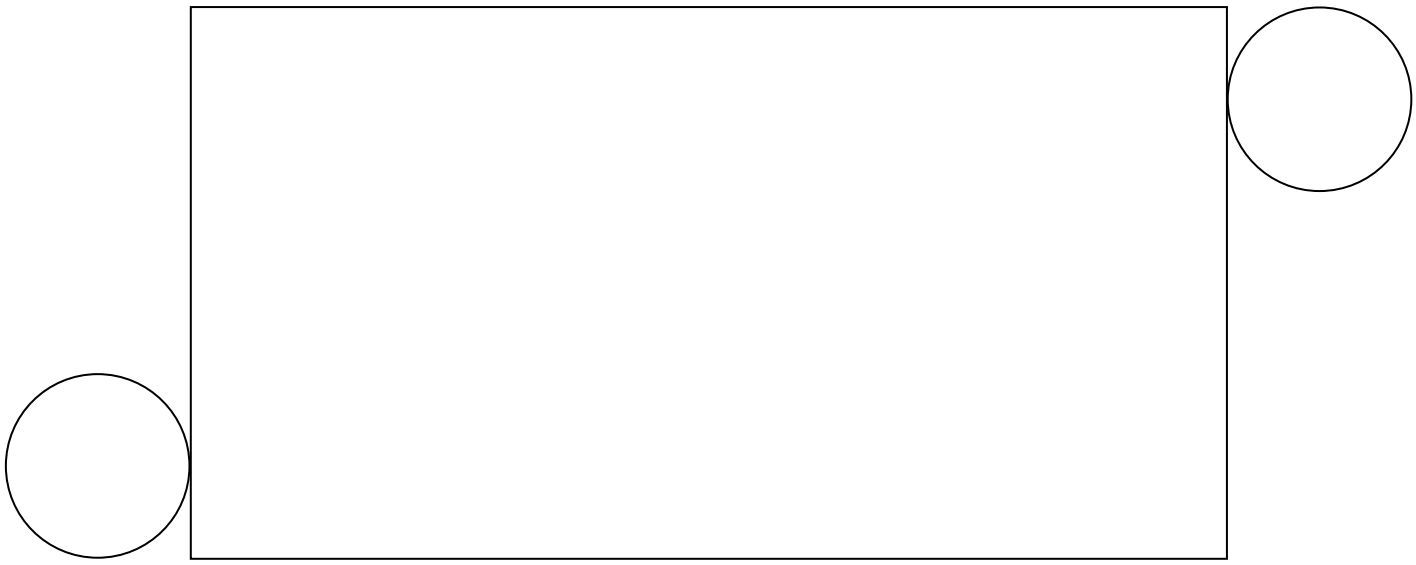
Area = _____

BLM 8.SS.2.2: Nets of 3–D Objects



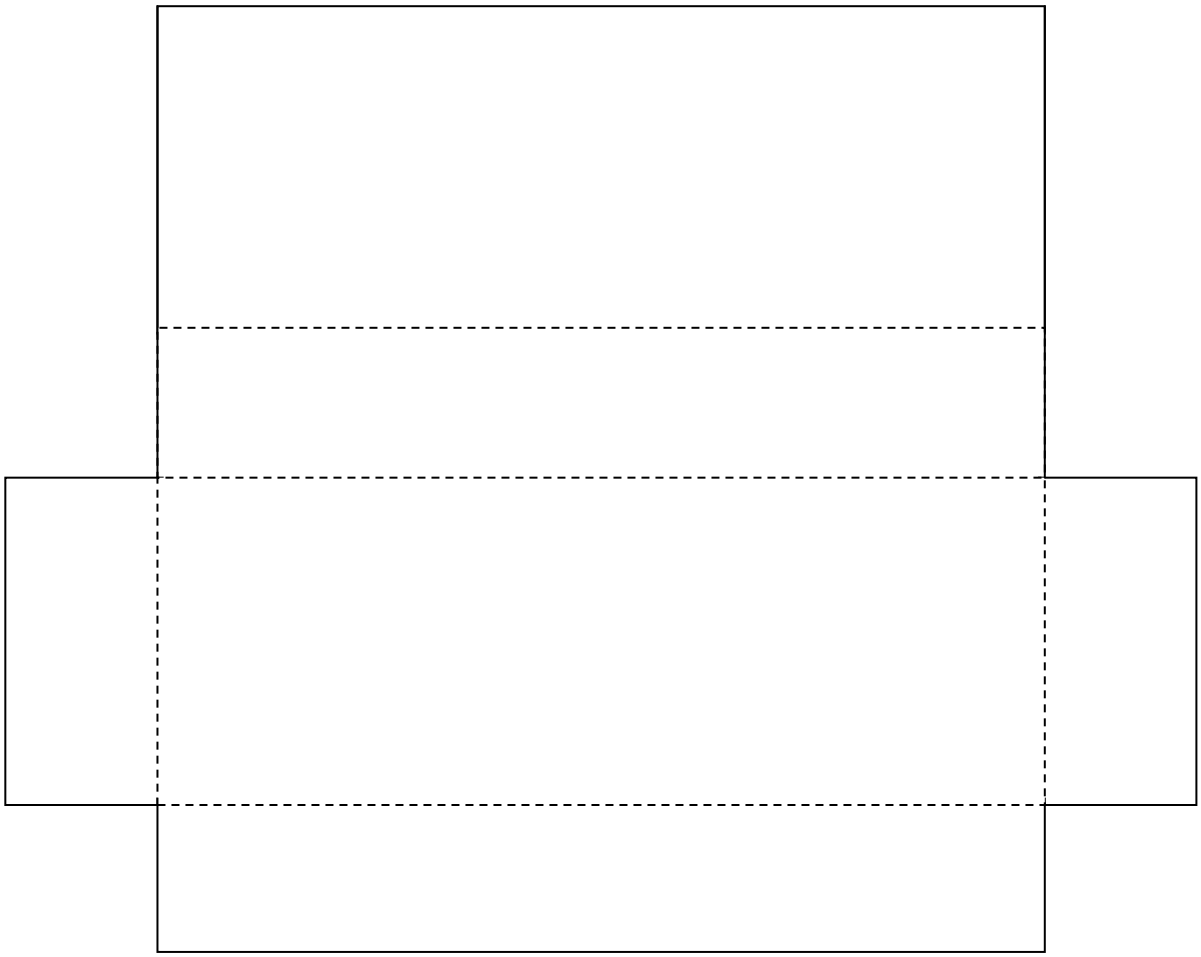
continued

BLM 8.SS.2.2: Nets of 3–D Objects (continued)



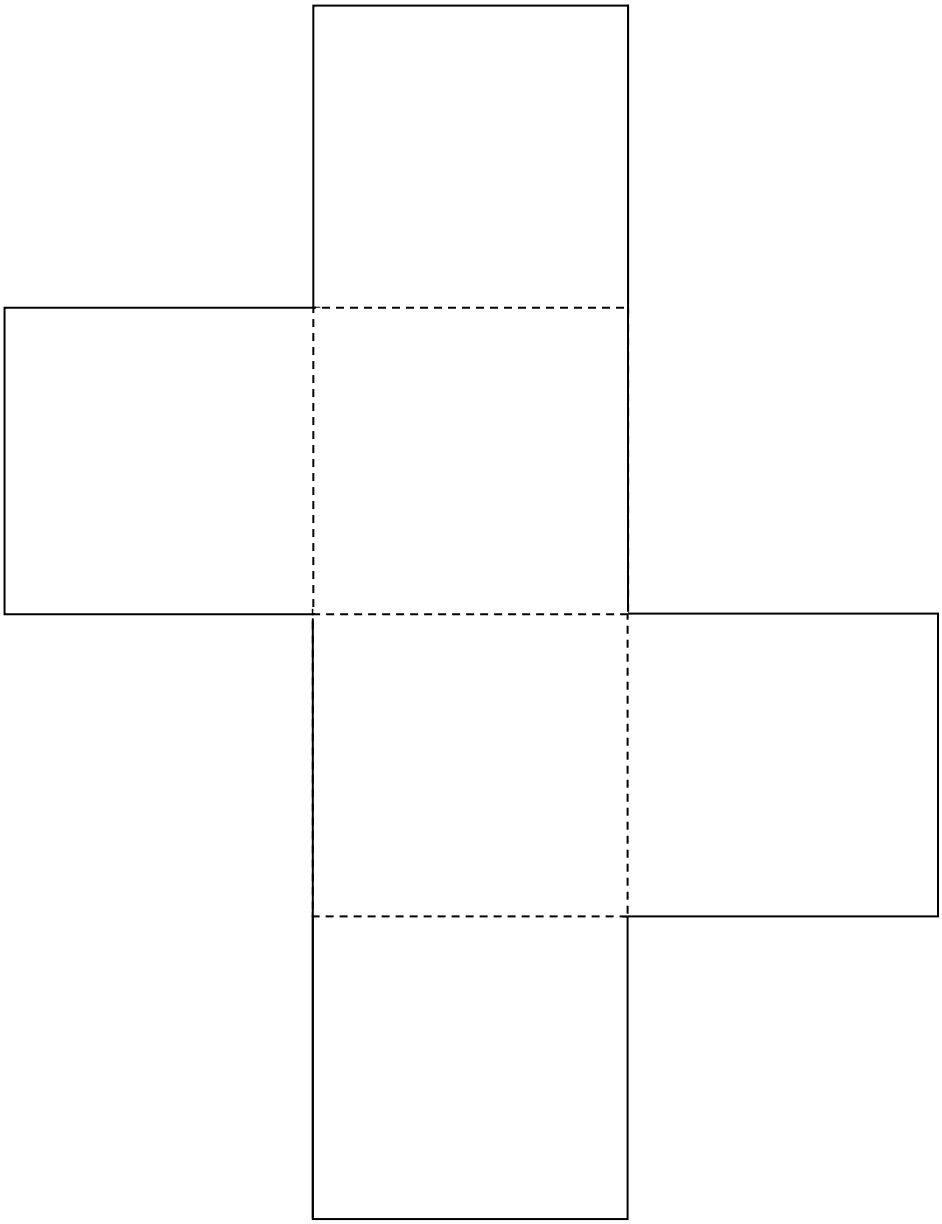
continued

BLM 8.SS.2.2: Nets of 3–D Objects (continued)



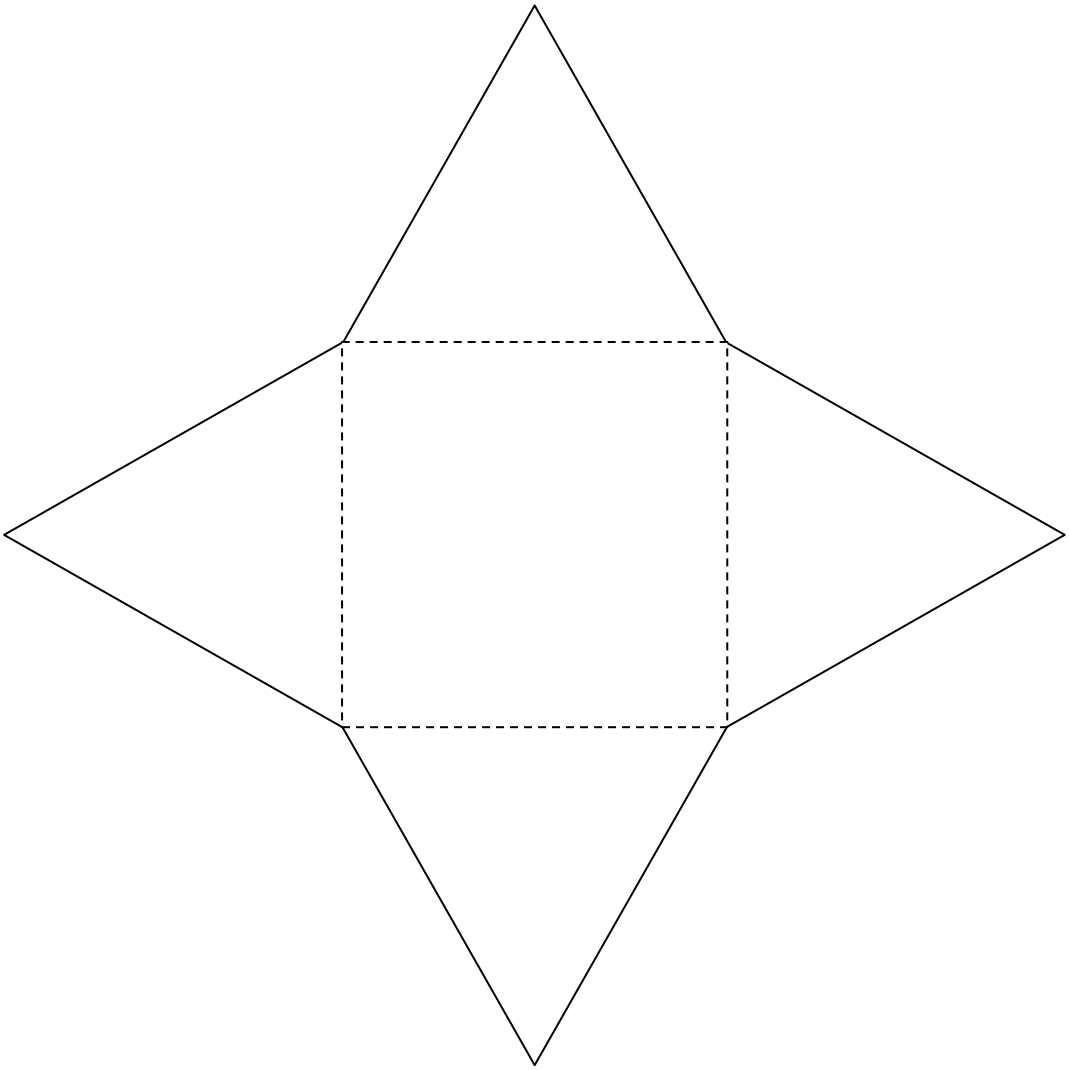
continued

BLM 8.SS.2.2: Nets of 3–D Objects (continued)



continued

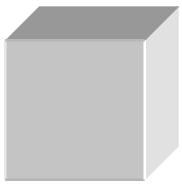
BLM 8.SS.2.2: Nets of 3–D Objects (continued)



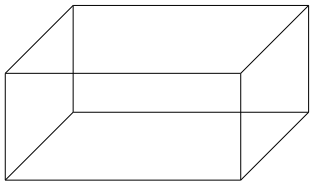
continued

BLM 8.SS.2.2: Nets of 3–D Objects (continued)

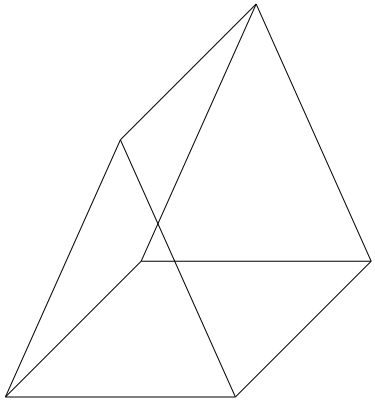
BLM 8.SS.2.3: 3–D Objects



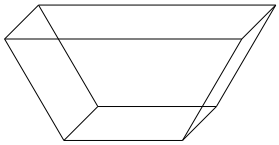
Cube



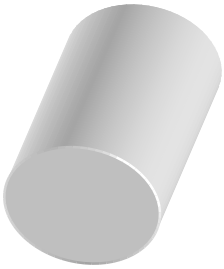
Rectangular prism



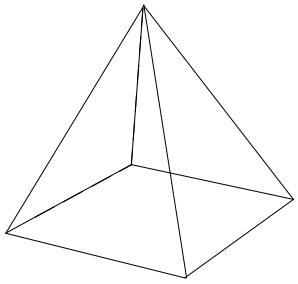
Triangular prism



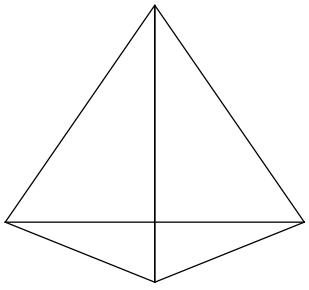
Trapezoid prism



Cylinder



Square pyramid

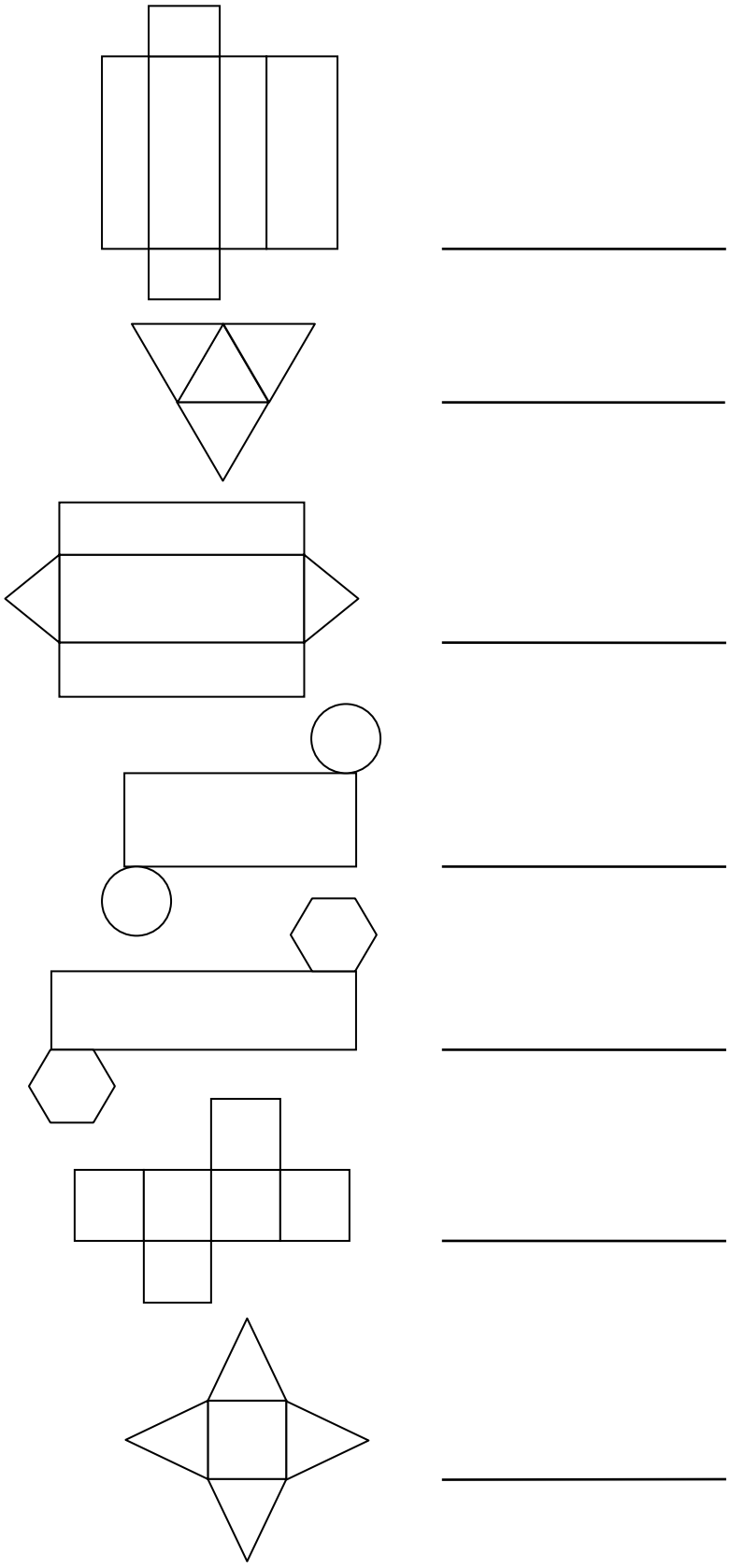


Triangular pyramid

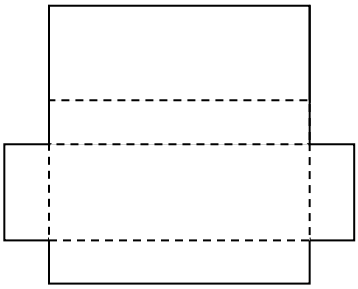
BLM 8.SS.2.4: Matching

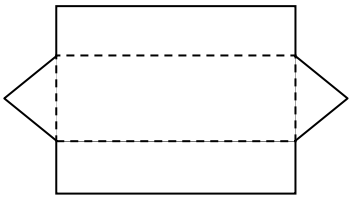
Match the following nets with their names.

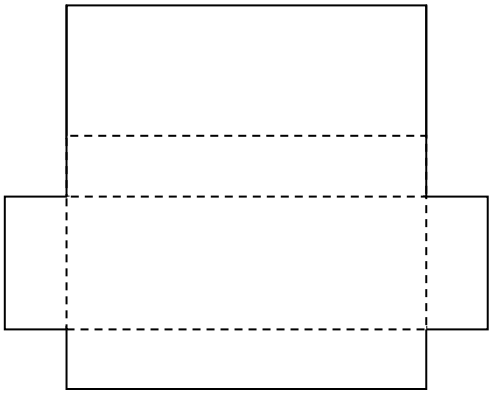
- cube
- triangular prism
- cylinder
- rectangular prism
- hexagonal prism
- rectangular pyramid
- triangular pyramid

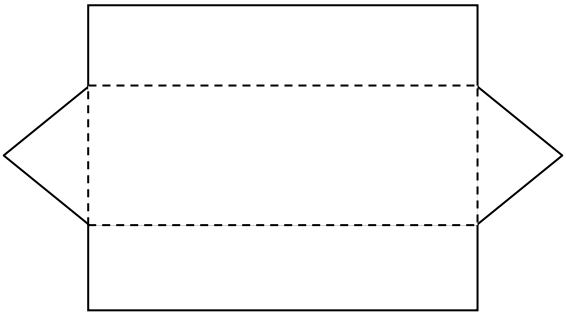


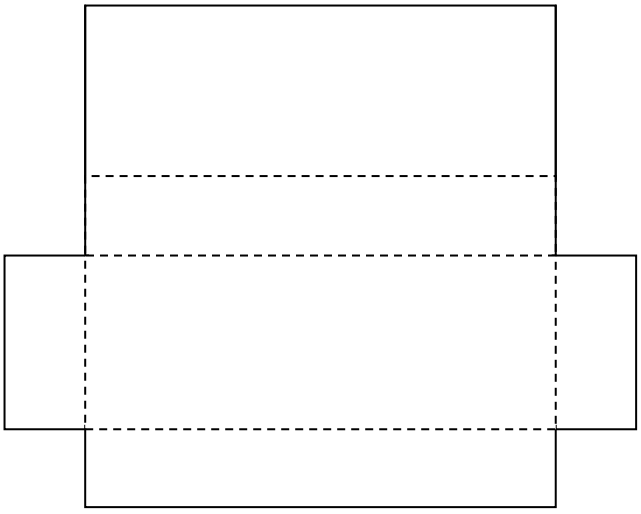
BLM 8.SS.3.1: Nets

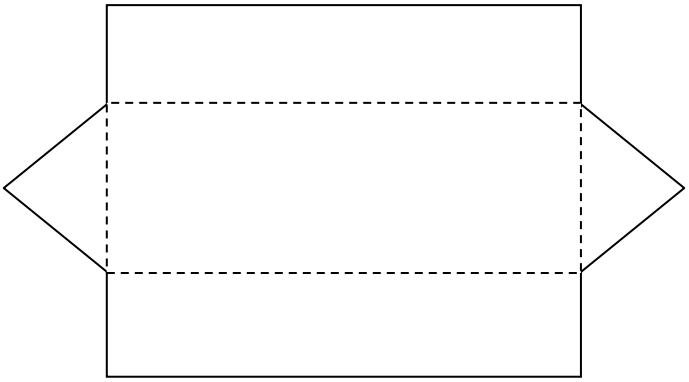








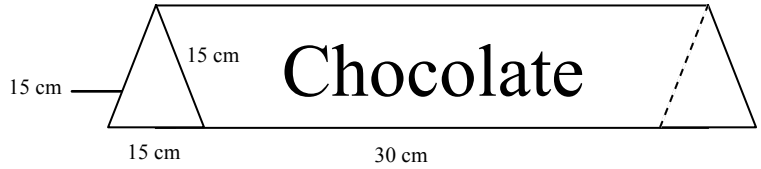




BLM 8.SS.3.2: Surface Area Problems

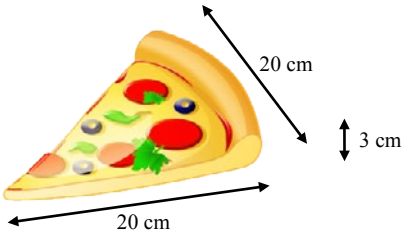
Solve the following surface area problems and record your answers on chart paper. Explain what method you chose for solving the problem, why you chose that method, and why you think your answer is reasonable. Be prepared to present your solution methods to the class.

1. Samantha's dad loves chocolate bars, so Samantha bought her dad a chocolate bar of the following size.

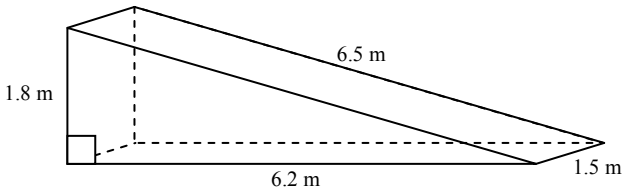


   What is the minimal amount of wrapping paper Samantha will need to wrap her dad's present? Calculate your answer to the nearest tenth of a square centimetre.

2. Joe's pizzeria sells individual slices of pizza. How much cardboard would you need to cover a piece of pizza of the following size if the height of the box must be 3 cm tall to accommodate the height of the pizza? Calculate your answer to the nearest tenth of a square centimetre.



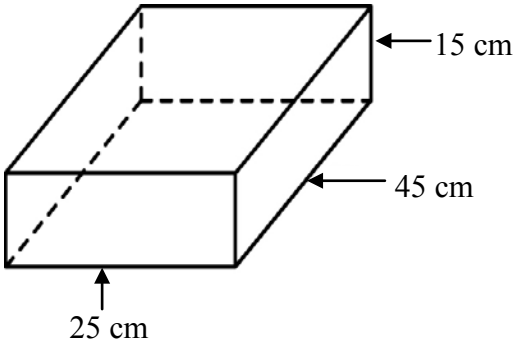
3. Jamil's grandmother is coming to live with his family. Jamil's grandmother is quite elderly and needs a wheelchair to enter and exit the house. How much wood does Jamil's mom have to buy to build the following ramp? Calculate your answer to the nearest hundredth of a square metre.



continued

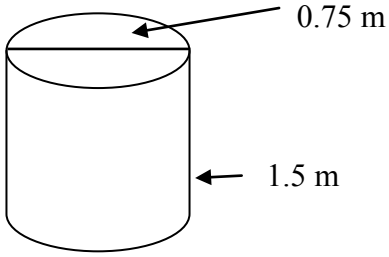
BLM 8.SS.3.2: Surface Area Problems (continued)

4. Hannah's mom bought Hannah a new alarm clock radio for her birthday. The alarm clock radio came in a box with the following dimensions. What is the minimal amount of wrapping paper Hannah's mom will need to wrap Hannah's present? Calculate your answer to the nearest tenth of a square centimetre.

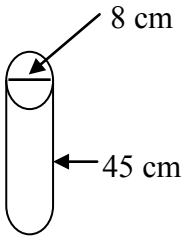


5. Rashedeh wants to paint her bedroom walls and ceiling. How much paint would she need if two walls have the dimensions of 3.5 m × 2.8 m, two walls have the dimensions of 2.4 m × 2.8 m, and the ceiling has a dimension of 3.5 m × 2.4 m, and one litre of paint covers 8.5 square metres?

6. Jordan wants to sand the rust off the following rain barrel, including the lid. How much area does he need to sand? Calculate your answer to the nearest tenth of a square metre.



7. Steve wants to design a cylinder that will hold 10 arrows. His design looks like this.

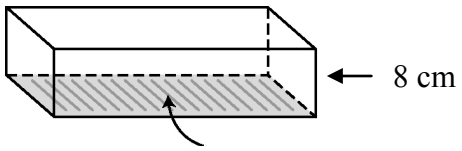


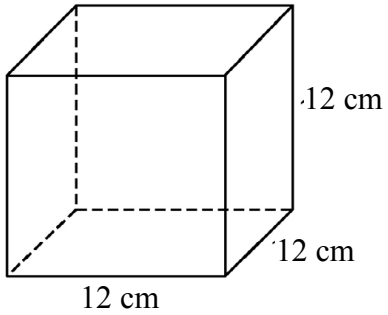
How much cardboard will he need to make his cylinder? Calculate your answer to the nearest tenth of a centimetre.

BLM 8.SS.4.1: Volume Problems

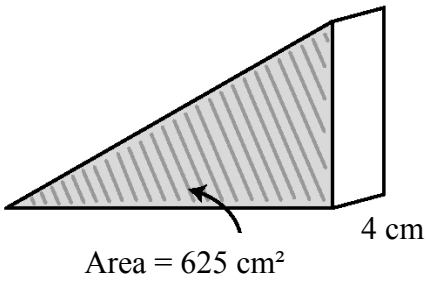
You will be solving volume problems that involve right cylinders and right prisms. Record your answers on chart paper. Explain what method you chose for solving each problem, why you chose that method, and why you think your answer is reasonable. Be prepared to present your problem-solving methods to the class.

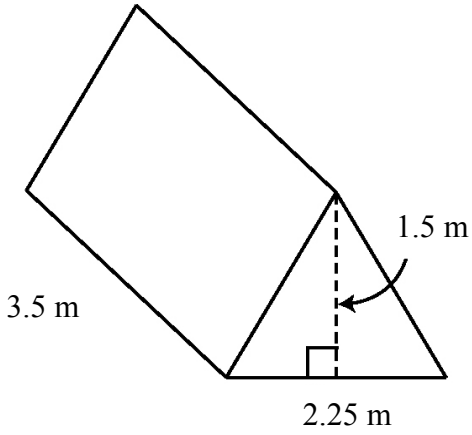
1. Determine the volume of the following rectangular prisms.



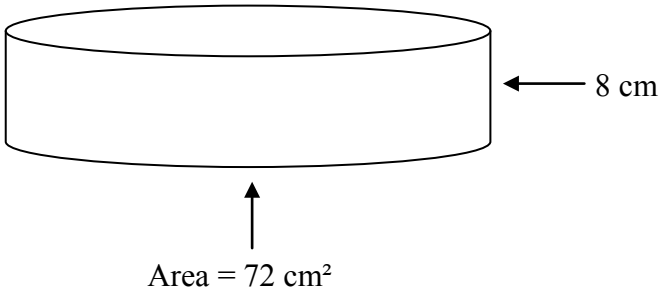


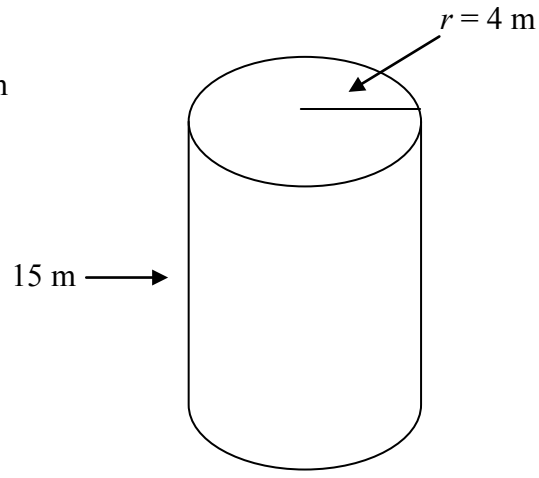
2. Determine the volume of the following triangular prisms.



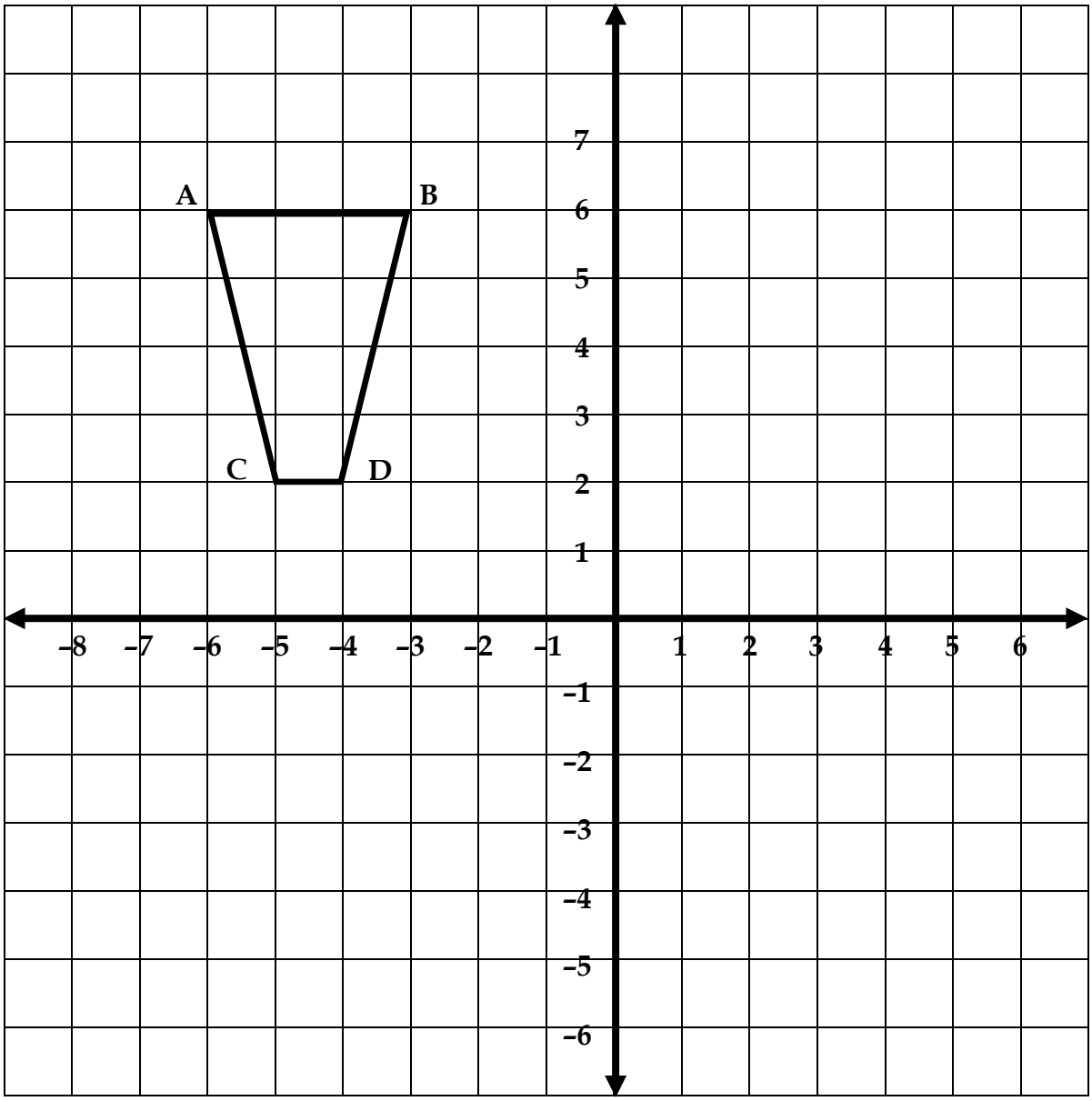


3. Determine the volume of the following right cylinders.





BLM 8.SS.6.1: Coordinate Image



BLM 8.SS.6.2: Tessellating the Plane

Shape	Sum of the interior angles of the common vertices	Does the shape tessellate the plane?
Square		
Equilateral triangle		
Regular hexagon		
Regular pentagon		
Regular octagon		
Rhombus		
Rectangle		
Parallelogram		
Isosceles triangle		
Irregular pentagon		

BLM 8.SS.6.3: Tessellation Slideshow

Determine which transformation was used for each of the following tessellations, which were created by Manitoba students.

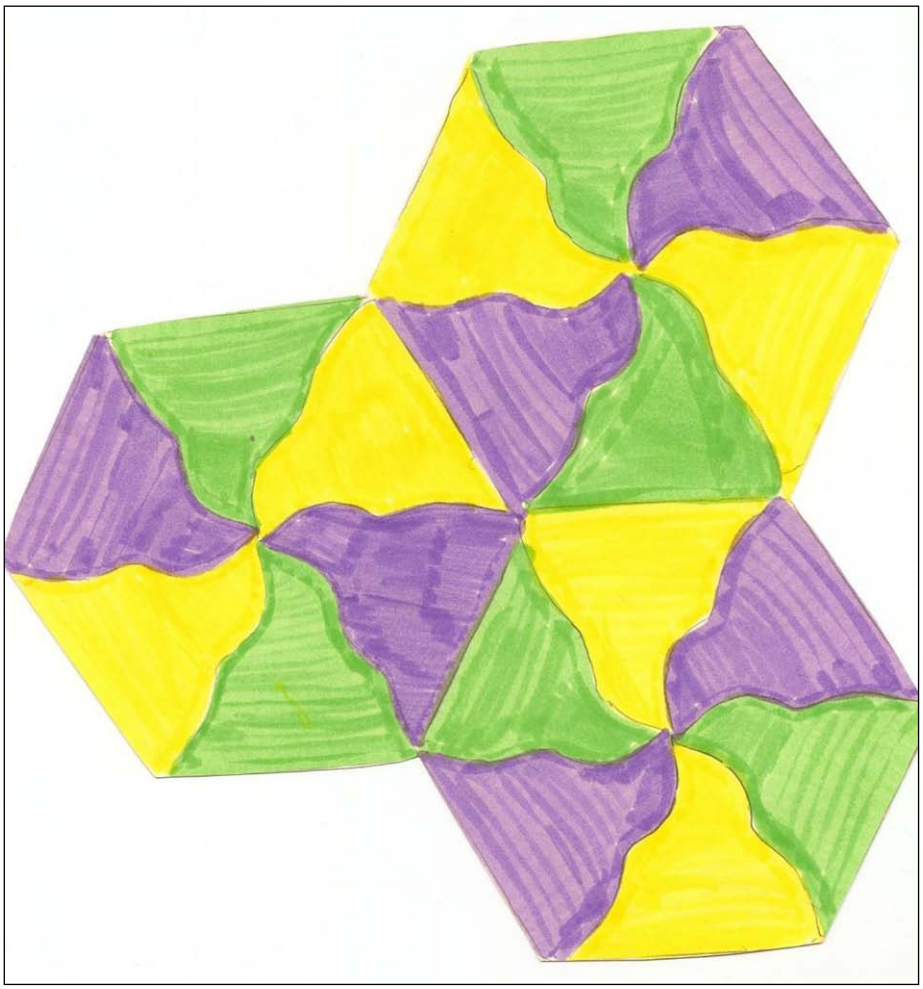
Tessellation #1

BLM 8.SS.6.3: Tessellation Slideshow (continued)

Tessellation #2

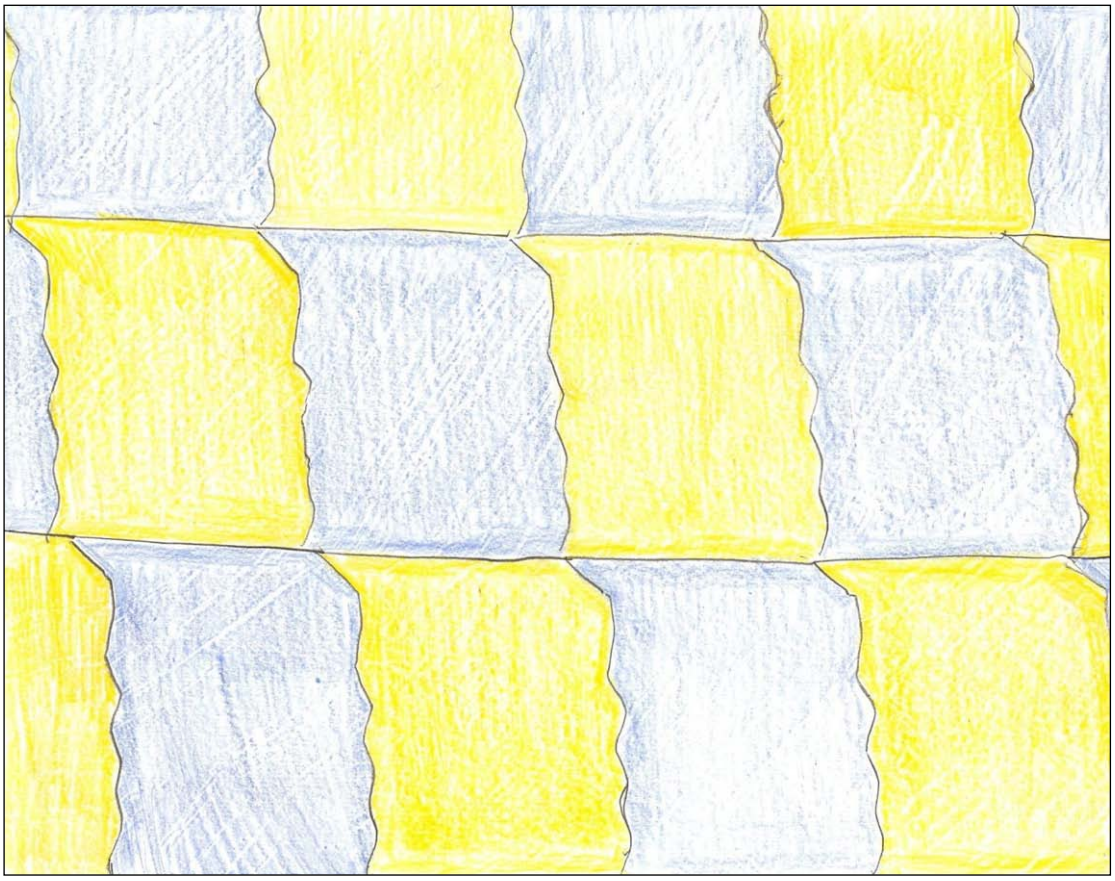
BLM 8.SS.6.3: Tessellation Slideshow (continued)

Tessellation #3



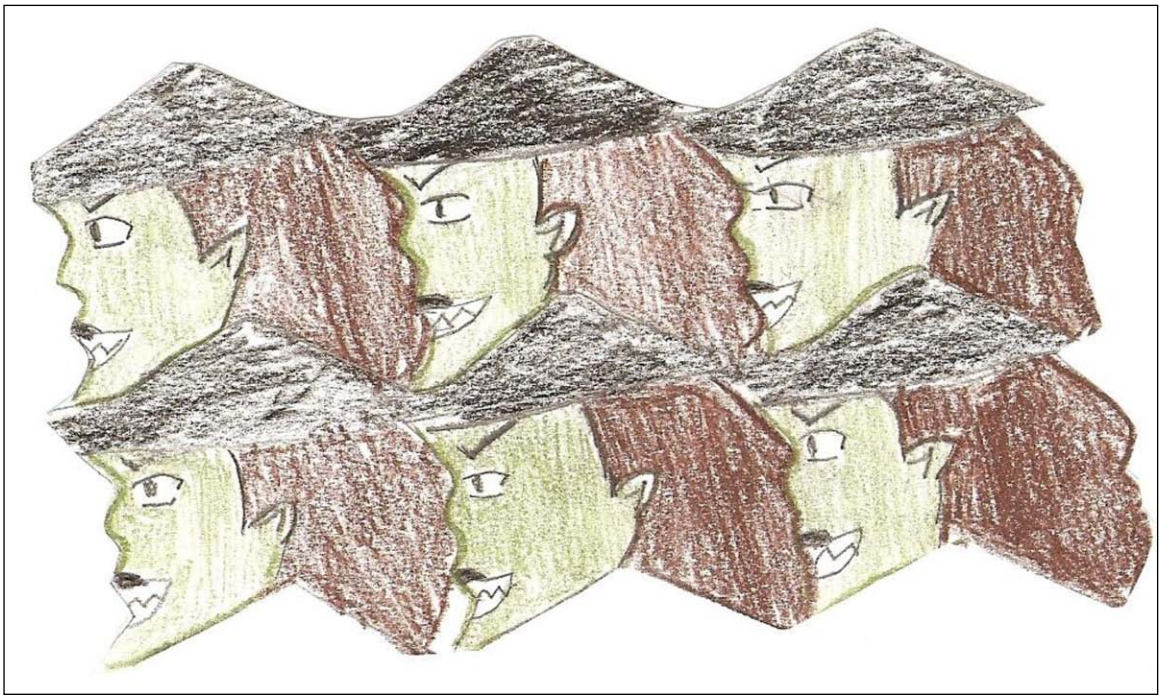
BLM 8.SS.6.3: Tessellation Slideshow (continued)

Tessellation #4



BLM 8.SS.6.3: Tessellation Slideshow (continued)

Tessellation #5

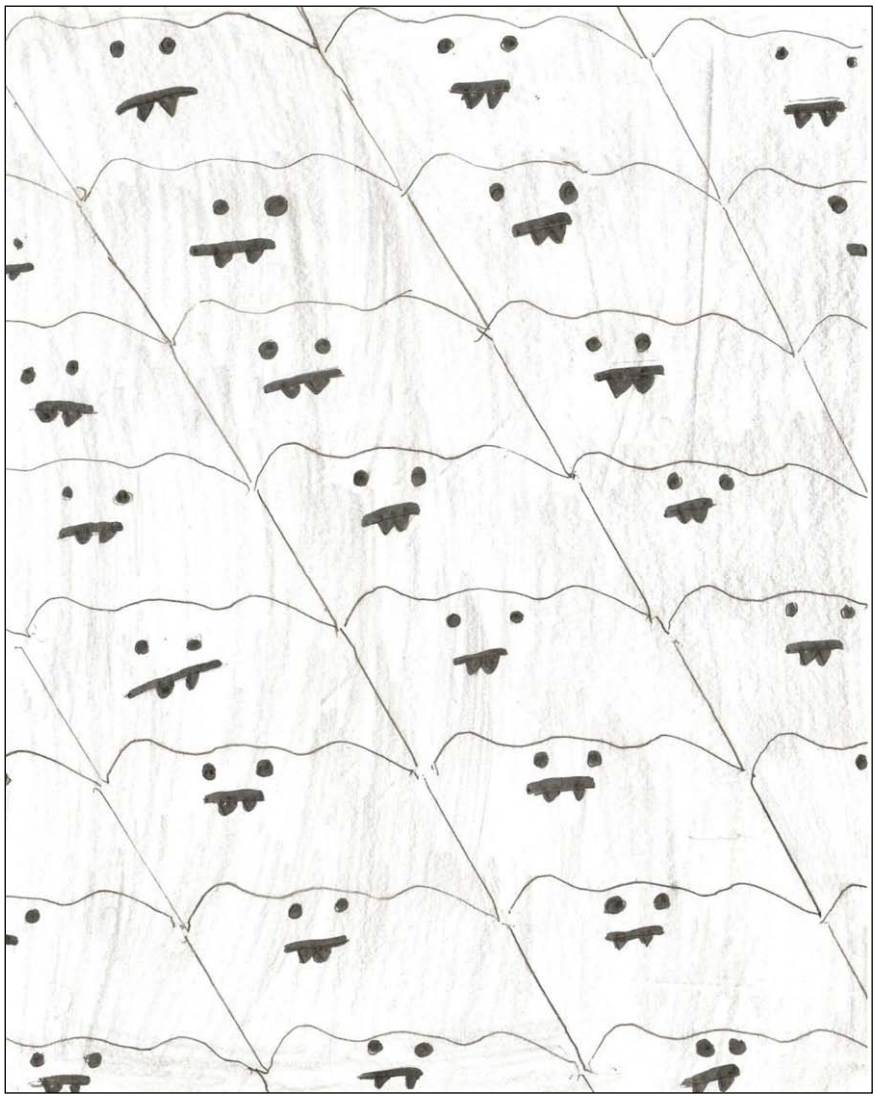


BLM 8.SS.6.3: Tessellation Slideshow (continued)

Tessellation #6

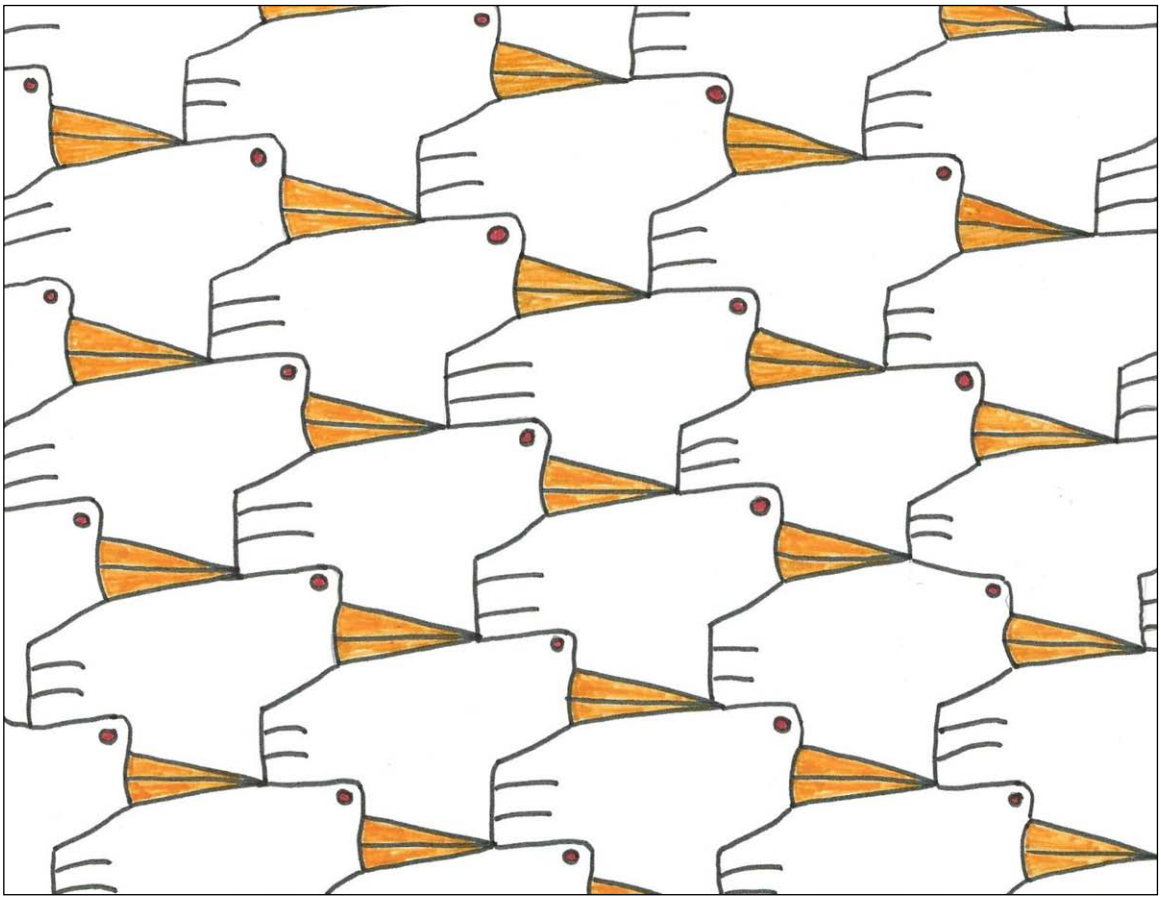
BLM 8.SS.6.3: Tessellation Slideshow (continued)

Tessellation #7



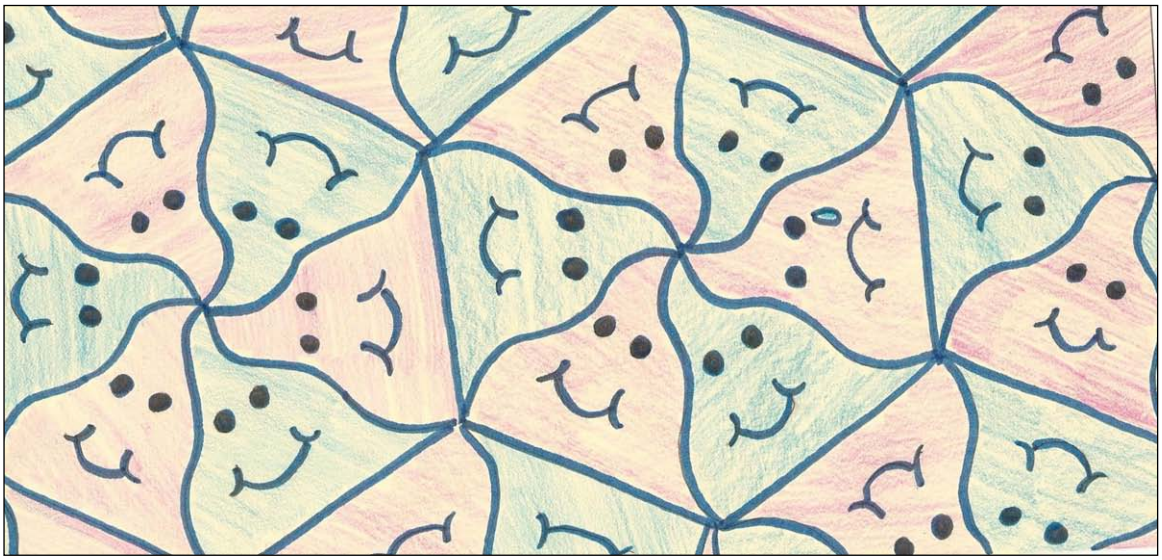
BLM 8.SS.6.3: Tessellation Slideshow (continued)

Tessellation #8



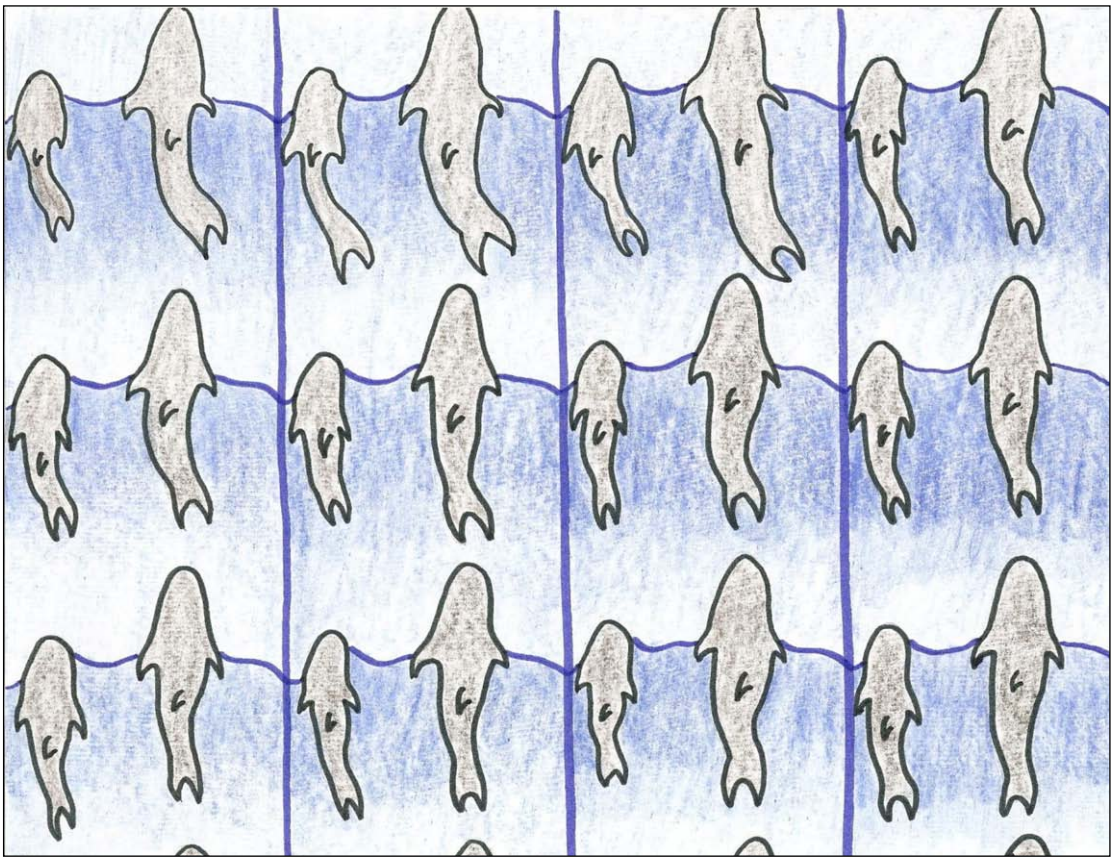
BLM 8.SS.6.3: Tessellation Slideshow (continued)

Tessellation #9



BLM 8.SS.6.3: Tessellation Slideshow (continued)

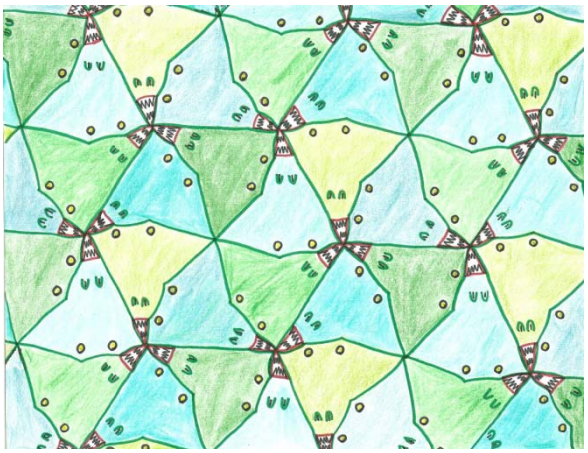
Tessellation #10



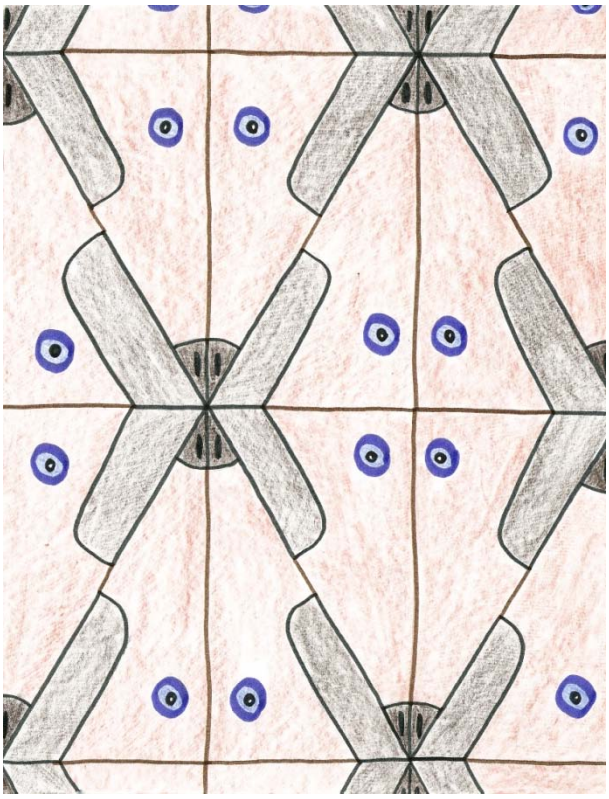
BLM 8.SS.6.4: Tessellation Recording Sheet

Recording Sheet for Tessellation Slide Show	
Tessellation Number	Transformation Used to Create Tessellation
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

BLM 8.SS.6.5: Tessellation Transformation



1. Identify which transformations were used for this tessellation. Justify your response.



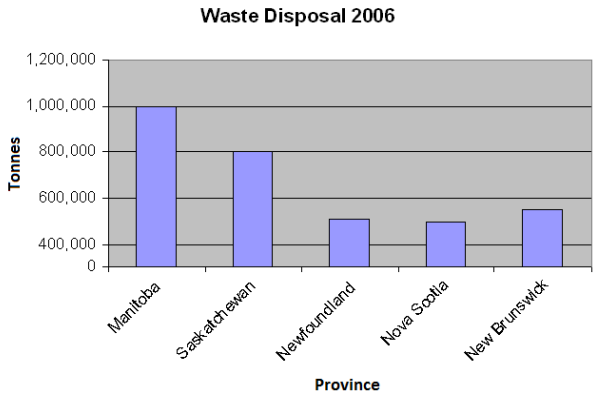
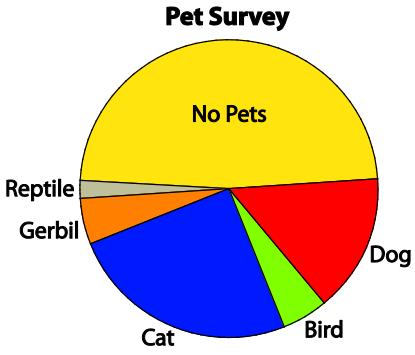
2. Identify which transformations were used for this tessellation. Justify your response.

BLM 8.SP.1.1: Data Analysis Pre-Assessment

Read the following scenarios and indicate whether the statements are true or false.

- Fill out the Start column at the beginning of your work with data.
- Fill out the End column at the end of your work with data.

If you select false, explain why in the space provided.

Scenario	True or False		Explanation
	Start	End	
1. You have asked all students in the class to identify their favourite search engine. The data should be displayed on a broken line graph.			
2. A circle graph must be filled up entirely, with no empty "pie pieces."			
3. 25% of a circle would be 60^{o}.			
4. The intervals on the bar graph below are properly spaced. 			
5. In the following circle graph representing 100 people, about 25 of them have cats. 			

BLM 8.SP.1.2: Data

Create a bar graph, a line graph, and a circle graph for each set of data presented below.

1. The following are average masses of some North American animals when they are full-grown.
   - Arctic wolf: 80 kg
   - Black bear: 135 kg
   - Bobcat: 9 kg
   - Grizzly bear: 450 kg
   - Mule deer: 90 kg

2. The following is Tani's heart rate during an eight-minute fitness test (beep test).

Heart Rate (beats/minute)	Time (seconds)
70	0
120	30
123	30
125	30
126	30
127	30
142	25
144	25
145	25
146	25
148	25
155	20
157	20
158	20
158	20
159	20
165	15
167	15
168	15
169	15
171	15
183	10
185	10
186	10
188	10
189	10
193	5
195	5
197	5
198	5
199	5

continued

BLM 8.SP.1.2: Data (continued)

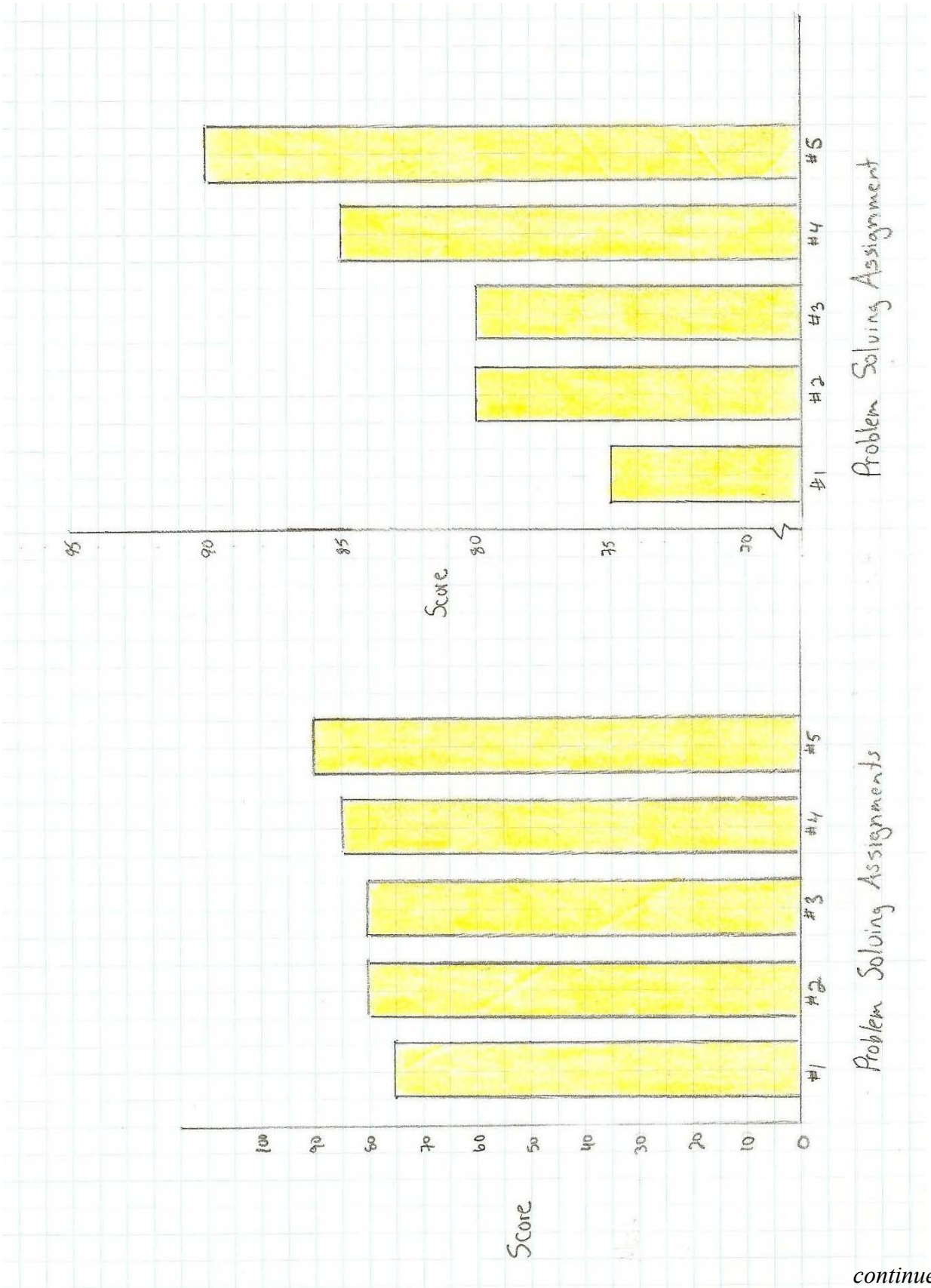
3. The following is Juan's heart rate during a 10-minute cardio test on the treadmill.

Heart Rate (beats/minute)	Time (minutes)
70	0
80	1
90	2
95	3
100	4
110	5
110	6
115	7
110	8
100	9
100	10

4. On a typical week day, Henry spends his time doing the following:
   - Watching TV and using the computer: 10%
   - At school: 25%
   - Doing homework: 5%
   - Sleeping: $33.\overline{3}\,\%\,\%$
   - Hanging out with friends: 10%
   - Reading: 5%
   - Eating: 5%
   - Other: $6.\overline{6}\,\%$

BLM 8.SP.1.3: Graph Samples

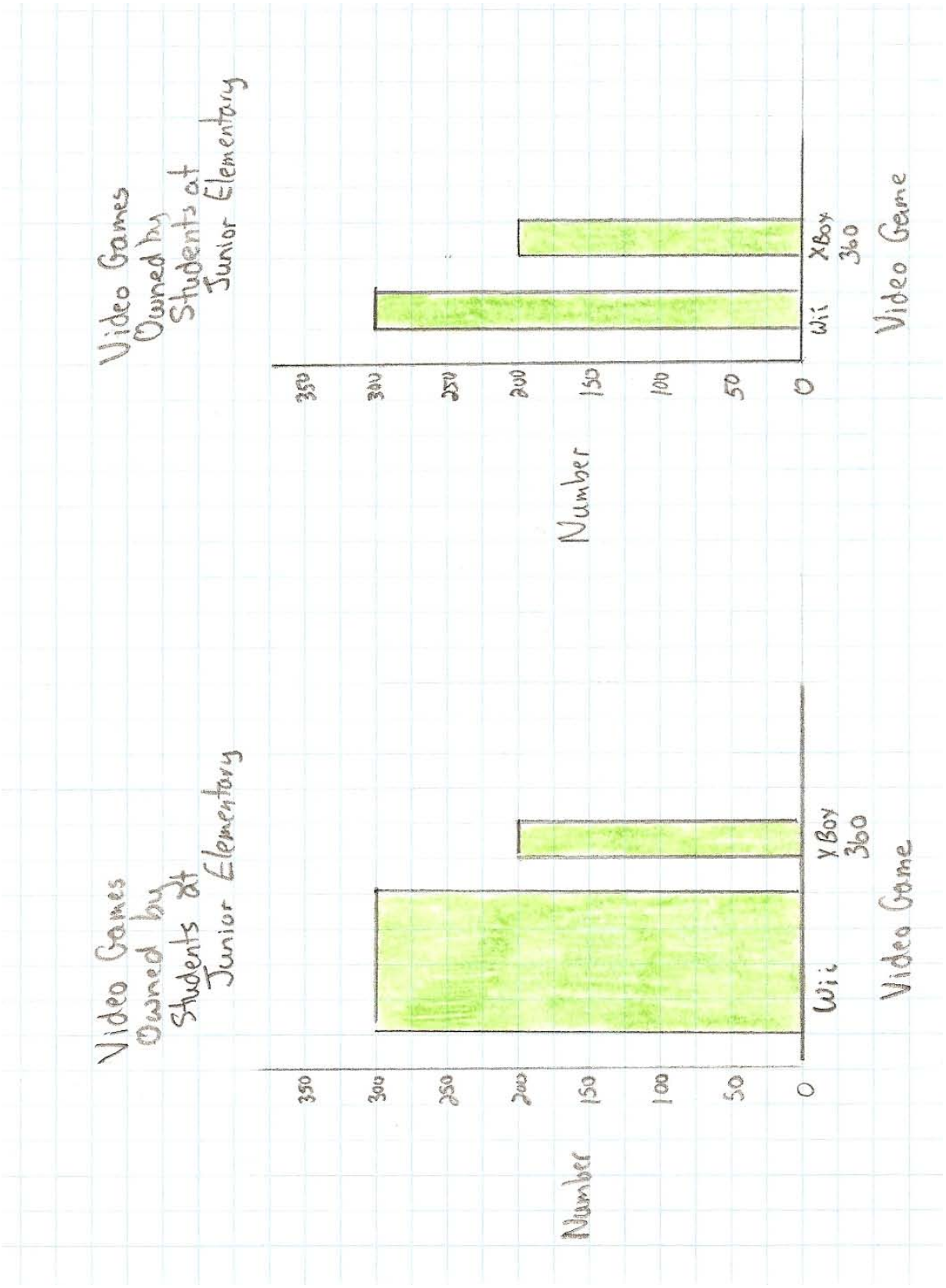
Sample 1



continued

BLM 8.SP.1.3: Graph Samples (continued)

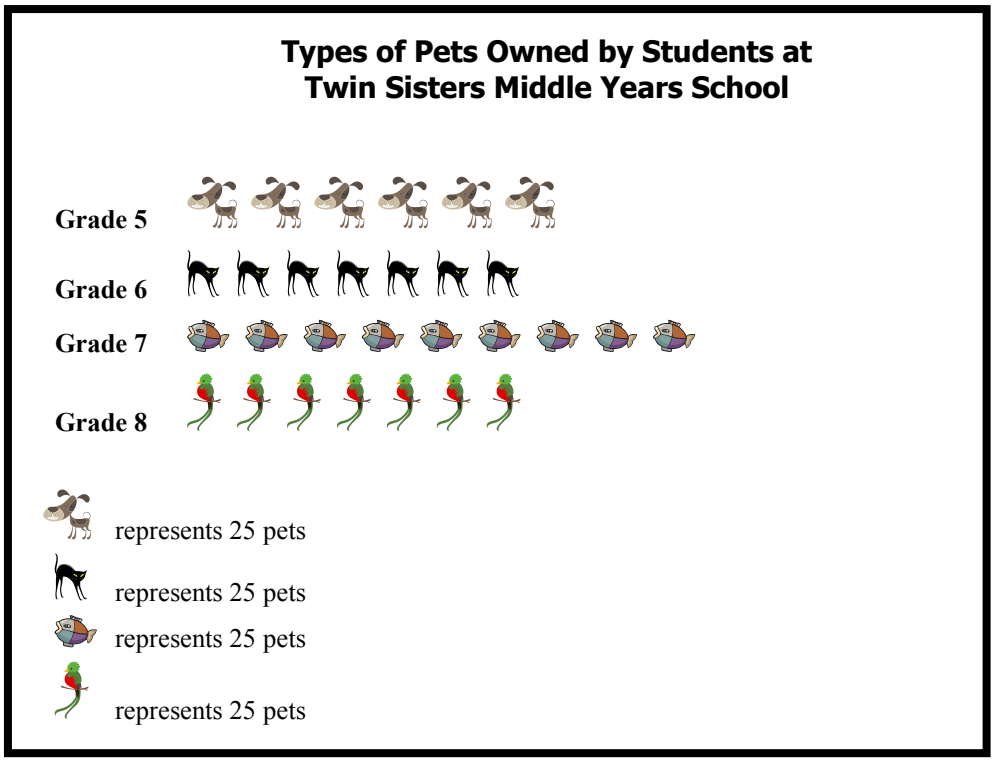
Sample 2

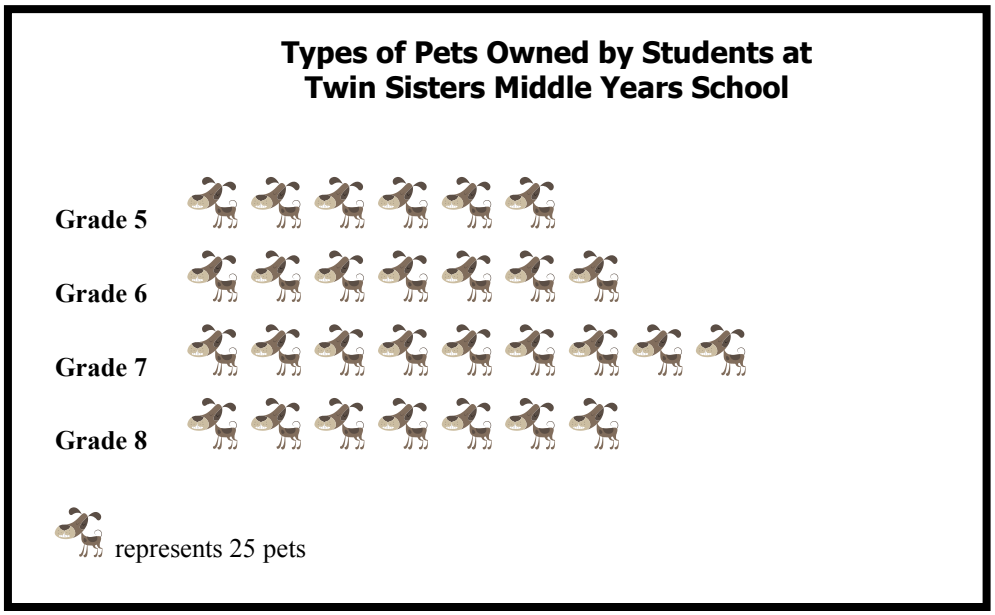


continued

BLM 8.SP.1.3: Graph Samples (continued)

Sample 3





BLM 8.SP.2.1: Probability Pre-Assessment

Find out what you already know about probability by responding to the following.

1. Emma and her mom are playing a number cube game and it is Emma's turn to roll the number cube. If she can roll a 5, she will win the game. Emma knows that the chances of rolling a 5 are pretty small—in fact only 1 in 6. Explain, using words and diagrams, whether Emma is correct.

2. Write P(5) in as many ways as you can.

BLM 8.SP.2.2: Tree Diagram

Use a tree diagram to organize the outcomes for the following.

1. Sam rolls a 12-sided number cube at the same time that Jenna spins a four-sectioned spinner with the letters L, O, V, and E. Determine all possible outcomes if Sam and Jenna complete the task at the same time.

2. State the following probabilities: P(1, L), P(even, O), P(odd, vowel).

BLM 8.SP.2.3: Table

Use a table to organize the outcomes for the following.

1. Jackson spins a three-sectioned spinner with the letters R, U, and N, and Roberta flips a nickel. Determine all possible outcomes if Jackson and Roberta complete the task at the same time.

2. State the following probabilities: P(R, Heads), P(consonant, T).

BLM 8.SP.2.4: Probability Problems

Solve the following probability problems and be prepared to present your solution strategies to the class.

1. You roll a six-sided number cube that has the numbers 2, 4, 6, 8, 10, and 12 on it. You spin a four-sectioned spinner that has the letters B, L, U, and E on it. Determine P(4 and vowel).

2. You flip a coin and spin a five-sectioned spinner that has the colours red, yellow, blue, green, and orange on it. Determine P(heads and red).

3. You flip a coin and spin a six-sectioned spinner with the letters O, R, A, N, G, and E on it. Determine P(heads and O).

4. You roll a regular number cube and spin a four-sectioned spinner with the letters T, R, E, and E on it. Determine P(4 and E).

5. You roll a regular number cube and flip a coin. Determine P(3 or less and tails).

6. You roll a six-sided number cube that has the numbers 2, 4, 6, 8, 10, and 12 on it. You roll another six-sided cube that has the numbers 1, 3, 5, 7, 9, and 11. Determine P(sum is even number) and P(sum is less than 12).

BLM 8.SP.2.5: Probability Problem Practice

Solve the following probability problems and be prepared to present your solution strategies.

1. What is the probability of landing on tails for a toss coin and rolling a 2 on a six-sided number cube?

2. What is the probability of pulling two red cards out of a deck (assuming you replace them after each pick)?

3. What is the probability of rolling a 6 in two rolls of a six-sided number cube?

4. What is the probability of choosing a 3 from a deck of cards and then choosing an ace (assuming you replace the card after the first pick)?

5. A drawer holds five pairs of socks in five different colours: black, red, blue, white, and purple. You want to wear the white socks. You reach into the drawer in the dark.
   a. If the socks are bundled together as pairs, what is the probability of pulling the white ones on one try? on two tries? (Assume you put the socks back after each try.)
   b. If the socks are not bundled together, what is the probability of pulling a white sock on the first try? on two tries?

6. A card is chosen randomly from a deck. What is the probability of choosing a face card each time (assuming you replace the card after each draw)?

7. A jar holds 10 red, 10 green, 12 yellow, and 4 blue gum balls. You reach into the jar and randomly pull out one gum ball. After replacing it, you choose a second one. What is the probability of choosing a blue and a yellow gum ball?

8. If a survey at school says that 9 out of 10 students like math, what is the probability that 3 students randomly chosen in the hall like math?

9. You are flipping a coin and throwing a six-sided number cube. What does P(H, 5) mean? Use a tree diagram to determine the probability of these independent events.

10. Use a tree diagram to determine the probability of tossing heads if you toss a coin three times.

11. The local ice cream shop offers four types of cones: sugar, waffle, standard, and chocolate dipped. You can have gelato, sorbet, frozen yogourt, or ice milk, each in four different flavours: chocolate, vanilla, strawberry, and maple walnut. How many different combinations are there? If the clerk randomly makes you a cone, what is the probability of it being a strawberry sorbet in a waffle cone?