

Mental Math

Grade 9 Mathematics (10F)

B-1

Substrand: Patterns

Specific Learning Outcome: 9.PR.1

General Questions	Answers
1. To make punch, Jean mixed 4 parts water to 1 part frozen juice. What is the ratio of water to the amount of punch?	4:5
2. If the price of a ticket to a baseball game is \$15, how many tickets can you buy with \$225?	15 tickets
3. How long will it take to drive 480 km at a speed of 40 km/hour?	12 hours
4. If Andrew can plant 3 flowers in 1 minute, how many flowers can he plant in 2 hours?	360 flowers
5. What is the total cost of 4 video games at \$45 each?	\$180
6. Multiply: $\frac{28}{7} \times \frac{1}{2}$	2
Unit Questions	
7. Find the next number in the sequence: 1, 1, 2, 3, 5, 8, 13, ____?	21
8. Find the next number in the following sequence: 100, 400, 900, 1600, 2500, 3600, ____	4900
9. A rectangle has a length of $2x + 1$ units. If you triple the length of the rectangle, write an expression representing the new length.	$3(2x + 1)$ or $6x + 3$
10. Paul is now 7 years old. Write an equation that represents his age x years from now.	$x + 7$
Other Questions	
11.	
12.	

Mental Math

Grade 9 Mathematics (10F)

B-2

Substrand: Patterns

Specific Learning Outcome: 9.PR.1

General Questions

1. What is the value of the hypotenuse of a right triangle if the other two sides measure 5 and 12.
2. Lucille takes 11 hours to crochet a doily. How many hours will it take to crochet one for each of her 15 friends?
3. The square root of 28 lies between what 2 positive, consecutive integers?
4. You deposit two cheques with values of \$143 and \$228 into your account. What is the total amount of your deposit?
5. What value of x satisfies the equation $4 + x = 0$?
6. If you get a mark on your math test of $\frac{21}{25}$, what is your mark as a percentage?

Answers

13

165 hours

5 and 6

\$371

$x = -4$

84%

Unit Questions

7. Find the missing number in the following sequence:
1, 2, 4, 8, ____, 32
8. Write the mathematical statement corresponding to:
"Eight less than two times a number is equal to four."
9. Complete this pattern: $1 \rightarrow 2, 2 \rightarrow 4, 3 \rightarrow 9, 4 \rightarrow 16, a \rightarrow$ ____
10. Find the missing number in the following sequence:
0, 3, 8, 15, 24, 35, 48, ____

16

$2x - 8 = 4$

a^2

63

Other Questions

11.

12.

Mental Math

Grade 9 Mathematics (10F)

B-3

Strand: Patterns

Specific Learning Outcome: 9.PR.1

General Questions	Answers
1. A dictionary costs \$64 and a novel costs \$52. What is the total price of the two books?	\$116
2. Multiply and simplify: $\frac{2}{5} \times \frac{15}{8}$	$\frac{3}{4}$
3. You are offered 30% off of a \$50 kite. What is the new price?	\$35
4. What is the cost of 1 kg of whole wheat flour if 6 kg cost \$9?	\$1.50
5. What two numbers have a sum of 18 and a product of 81?	9 and 9
6. Estimate the number of water bottles you would need each day for 111 athletes who each require an average of 2.7 water bottles a day?	≈ 300
Unit Questions	
7. Write the mathematical statement corresponding to the following written statement: "The sum of two consecutive integers is equal to negative eleven."	$x + (x + 1) = -11$ or $2x + 1 = -11$
8. Complete this pattern: $-1 \rightarrow 1, 2 \rightarrow 4, 3 \rightarrow 5, 4 \rightarrow 6, x \rightarrow \underline{\hspace{2cm}}$	$x + 2$
9. Your current age is x years. Write an expression to represent your age 12 years ago.	$x - 12$
10. Find the next number in the sequence: 2, -10, 50, -250, $\underline{\hspace{2cm}}$	1250
Other Questions	
11.	
12.	

Mental Math

Grade 9 Mathematics (10F)

B-4

Substrand: Patterns

Specific Learning Outcome: 9.PR.2

General Questions

1. What is the value of $\sqrt{164}$ to the nearest integer.
2. In a class of 40 students, 40% have never travelled to Nopiming Provincial Park. How many students is that?
3. Find the perimeter of a regular hexagon if one side measures 8 cm.
4. Add: $\frac{4}{9} + \frac{1}{3}$
5. If you work 8 hours a day for 2 days at \$11 per hour, what is your gross income?
6. It was 7°C Monday, 10°C Tuesday, and 7°C Wednesday. What is the average temperature over these 3 days?

Answers

13

16 students

48 cm

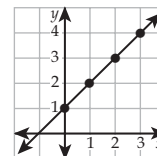
$\frac{7}{9}$

\$176

8°C

Unit Questions

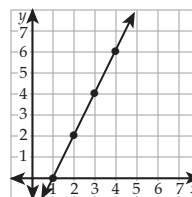
7. Sketch the graph of $y = x + 1$.
8. Given, $y = 3x - 1$, find the value of y when $x = 10$.
9. In the graph shown, what is the value of x when $y = 4$?
10. In the graph shown, what is the value of y when $x = 3.5$?



29

$x = 3$

$y = 5$



Other Questions

11.

12.

Mental Math

Grade 9 Mathematics (10F)

B-5

Substrand: Patterns

Specific Learning Outcome: 9.PR.2

General Questions

1. If 6 friends go to the lake and catch 21 fish each, how many fish were caught in total?
2. A raincoat that costs \$155 is reduced by 10%. How much is the cost of the coat reduced by?
3. Calculate the area of a triangle with a base of 6 cm and a height of 10 cm.
4. Subtract: $\frac{3}{2} - \frac{1}{2}$
5. Evaluate: $0 \div \frac{7}{8}$
6. Jacob can swim 10 lengths of the pool in 5 minutes. At this pace, how many lengths can he swim in an hour?

Answers

126 fish

\$15.50

30 cm²

1

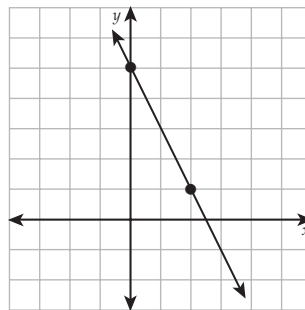
0

120 lengths

Unit Questions

The graph below shows a line that passes through the points (0, 5) and (2, 1).

7. What is the value of x when $y = 0$?
8. What is the value of y when $x = 1$?
9. Determine the value of x when $y = 7$.
10. Determine the value of y when $x = 4$.



$$x = 2\frac{1}{2}$$

$$y = 3$$

$$x = -1$$

$$y = -3$$

Other Questions

11.

12.

Mental Math

Grade 9 Mathematics (10F)

B-6

Substrand: Patterns

Specific Learning Outcome: 9.PR.2

General Questions

1. How many thirds are equivalent to 8?
2. Calculate 5% of a \$5 hamburger.
3. If you ate 6 of 8 pieces in an apple pie, what percentage would you have left?
4. What value is the smallest, $\frac{2}{3}$ or $\frac{4}{7}$?
5. What is the lowest common denominator for $\frac{2}{7}$ and $\frac{2}{3}$?
6. In a school survey, 50% of 122 students said they compost at home. How many students does that represent?

Answers

24 thirds or $\frac{24}{3}$

\$0.25 or
25 cents

25%

$\frac{4}{7}$

21

61 students

Unit Questions

Given the following table:

hours (h)	0	1	4	6
pay (\$)	0	11	44	66

7. What is the independent variable?
8. Pay of \$110 corresponds to how many hours worked?
9. Does question 8 represent an interpolation or an extrapolation of the data?
10. What is the hourly rate of pay?

hours

10 hours

extrapolation

\$11/hour

Other Questions

11.

12.