Mental Math

Grade 12 Essential Mathematics (40S)

D–1

Unit D: Probability   **Specific Learning Outcome: 12.E6.P.1**

General Questions	Answers
1. What is $\dfrac{3}{5}$ as a decimal number?	0.6
2. Write this ratio as a fraction: $3:7$	$\dfrac{3}{7}$
3. Add these two fractions: $\dfrac{3}{16} + \dfrac{2}{4}$	$\dfrac{11}{16}$
4. Name the numerator and the denominator in this fraction: $\dfrac{8}{37}$	Numerator: 8 Denominator: 37
5. For every 100 people in the world, 34 have a blood type of A-positive. Write this as a fraction in lowest terms.	$\dfrac{17}{50}$

Unit Questions	
6. There is a one in ten chance that it will rain today. What is the probability of there being no rain today? Express as a percent.	90%
7. There is a four in five chance it will snow tomorrow. Express this probability as a decimal.	0.8
8. A Manitoba student is in school for about 200 days a year. What is the likelihood that a student with perfect attendance will be in a regular class on August 5? Express as a percent.	0% (no school on August 5)

Other Questions	
9.	
10.	

Mental Math

D–2

Grade 12 Essential Mathematics (40S)

Unit D: Probability   **Specific Learning Outcome: 12.E6.P.1**

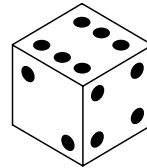| General Questions	Answers
1. What is 7% of 200?	14
2. Evaluate: $\left(\dfrac{5}{7}\right) - \left(\dfrac{2}{14}\right)$	$\dfrac{4}{7}$
3. Convert this fraction to a percent and a ratio in lowest terms: $\dfrac{3}{12}$	25% or 1:4
4. Write two fractions that are equivalent to $\dfrac{4}{9}$.	Possible answers: $\dfrac{8}{18}, \dfrac{12}{27}$
5. One out of five people do not like the colour blue. Write this fraction in percent and decimal form.	20% or 0.20

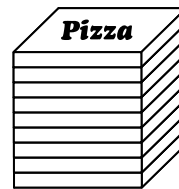| Unit Questions	
6. A six-sided die is rolled. What is the **probability** that the die will roll a 6? Express as a ratio in lowest terms.	1:6
7. A six-sided die is rolled. What are the **odds** that the die will roll a 6? Express as a ratio.	1:5
8. You have nine stacked boxes of pizza. Two are cheese, four are Canadian, and three are ham. What are the odds of the first box being a cheese pizza? *Pizza*	2:7

Other Questions	
9.	
10.	

Mental Math

Grade 12 Essential Mathematics (40S)

Unit D: Probability **Specific Learning Outcome: 12.E6.P.1**

General Questions	Answers
1. The odds against winning a certain game are $1:2$. Convert these odds to a probability.	$P(\text{winning}) = \dfrac{1}{3}$
2. What is $0.3 \times \$100$?	$\$30$
3. There are 52 cards in a deck, with 13 cards in each suit. What is the probability of drawing a heart (one of the suits)?	$P(\text{heart}) = \dfrac{13}{52}$
4. From your house, you walk 8 m north, 5 m west, 8 m south, and 4 m east. How far are you from your house (in terms of directions)?	You are 1 m west from your house.
5. Which of the following words would come next in this pattern? One, four, three, eleven, fifteen, thirteen, . . . a) fourteen b) five c) seven d) seventeen	seventeen (9 letters)

Unit Questions

Use the following table to answer questions 6 to 8. The cost of buying a warranty and the probability of making a claim are shown below.

Event	Probability	Warranty Cost	Claim Received	Payoff
Paid when making a claim	$\dfrac{1}{100} = 0.01$	$\$10$	$\$110$	$\$100$
Not making a claim	$\dfrac{99}{100} = 0.99$	$\$10$	$\$0$	$-\$10$

	Answers
6. What is the probability × payoff for getting a warranty claim?	$\$1$
7. What is the probability × payoff for not making a warranty claim?	$-\$9.90$
8. What is the expected value of the warranty?	$-\$8.90$

Other Questions

9.

10.

Mental Math

Grade 12 Essential Mathematics (40S)

D–4

Unit D: Probability   **Specific Learning Outcome: 12.E6.P.1**

General Questions	Answers
1. Evaluate: $\left(\dfrac{2}{9}\right) \times \left(\dfrac{9}{4}\right)$	$\dfrac{1}{2}$
2. One-third of students in a class of 108 students have never failed a test. How many students have never failed a test?	36
3. Convert this fraction to a decimal and a percent: $\dfrac{5}{40}$	0.125, 12.5%
4. Evaluate and express as a mixed fraction in lowest terms: $\dfrac{5}{6} + \dfrac{2}{3}$	$1\dfrac{1}{2}$
5. A group of co-workers wants to purchase pizza for lunch. There are seven co-workers and the pizza costs \$84. If each co-worker pays an equal amount of the cost, how much should each person pay?	\$12 each

Unit Questions

Answer questions 6 and 7 using the information below.

Devon is doing an experiment with two rats in separate cages that include an area to play and a separate space to eat. He feeds the rats every 12 hours. He comes into the room, pours food in the dish, and then rings the bell. Here are his results from 50 experiments with each rat.

	Already at the Food Dish	Comes to the Bell Sound	Comes to Sound of Food in Dish	Comes at a Later Time
Rat 1	13	15	17	5
Rat 2	0	10	24	16

6. What is the experimental probability that Rat 2 "comes to the bell sound"? Express as a percent.	20%
7. What is the experimental probability that Rat 1 will already be at the food dish when it is time to eat? Express as a percent.	26%
8. Odis the dog likes to catch birds. On average, he catches one bird every 60 days. If Odis caught a bird 51 days ago, what is the probability he will catch a bird today? Express as a fraction.	$\dfrac{1}{60}$

Other Questions

9.	
10.	