

Grade 8 Sample Items

1. Which of the following is an equation of a line with a slope of 4 and a y-intercept of -1?
A. $y = 4x - 1$
B. $y = 4x + 1$
C. $y = -1x + 4$
D. $y = -1x - 4$
2. Which of the following is equal to 4.38×10^{-5} ?
A. 0.00000438
B. 0.0000438
C. 438,000
D. 43,800,000
3. Agnes put \$500 into an account that earns 2% simple annual interest. How much money will she have in the account after 6 years if she makes no withdrawals or deposits?
A. \$60
B. \$560
C. \$1,100
D. \$6,500
4. Which of the following numbers are irrational?

$$\frac{2}{3}, \sqrt{7}, \sqrt{121}, 4.5, \overline{0.2}, \pi$$

- A. $\sqrt{7}, \pi$
- B. $\sqrt{7}, \sqrt{121}, \pi$
- C. $\frac{2}{3}, \overline{0.2}, \pi$
- D. $\frac{2}{3}, \sqrt{7}, \sqrt{121}, 4.5, \overline{0.2}$

5. One side of a right triangle is 10 centimeters. The longest side of the triangle is 26 centimeters. What is the length, in centimeters, of the other side of the triangle?

A. 16 centimeters
 B. 24 centimeters
 C. 28 centimeters
 D. 36 centimeters

6. What is the solution of x in the equation $5x + 26 = 101$?

7. Ben is choosing an outfit to wear to school today. Ben has 3 pairs of pants, 6 shirts, and 2 pairs of shoes. How many combinations of outfits are possible if Ben chooses one pair of pants, one shirt, and one pair of shoes?

	/	/	/	
•	•	•	•	•
0	0	0	0	0
1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4
5	5	5	5	5
6	6	6	6	6
7	7	7	7	7
8	8	8	8	8
9	9	9	9	9

	/	/	/	
•	•	•	•	•
0	0	0	0	0
1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4
5	5	5	5	5
6	6	6	6	6
7	7	7	7	7
8	8	8	8	8
9	9	9	9	9

8. A train traveled at a constant speed for 6 hours. The train traveled 225 miles in those 6 hours. What was the speed, in miles per hour, of the train?

	/	/	/	
•	•	•	•	•
0	0	0	0	0
1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4
5	5	5	5	5
6	6	6	6	6
7	7	7	7	7
8	8	8	8	8
9	9	9	9	9

9. Tina and Jim each work at a different car wash. Tina is paid \$37 per day plus \$1.50 for each car she washes. Jim is paid \$40 per day plus \$1.00 for each car he washes.

Write an expression that represents the amount Tina is paid each day given the number of cars (c) she washes.

Expression _____

Write an expression that represents the amount Jim is paid each day given the number of cars (c) he washes.

Expression _____

On Monday, Tina and Jim washed the same number of cars and earned the same amount of money. How many cars did they each wash on Monday?

Show All Work

Answer _____

10. A pizza with 2 toppings from Maria's Pizza Place costs \$11.00.
A pizza with 5 toppings from Maria's Pizza Place costs \$14.75.

Each topping at Maria's Pizza Place costs the same amount.

What is the price per topping at Maria's Pizza Place?

Show All Work

Answer \$_____

Write an expression that represents the cost, in dollars, of a pizza at Maria's Pizza Place given the number of toppings (n).

Show All Work

Expression_____

How many 4-topping pizzas can you buy with \$90 from Maria's Pizza Place?

Show All Work

Answer_____4-topping pizzas

11. Natalie earns \$2.50 for each CD she sells and \$3.50 for each DVD she sells. Natalie sold 45 DVDs last year. She earned a total of \$780 last year selling CDs and DVDs.

Write an equation that can be used to determine the number of CDs (c) Natalie sold last year.

Answer _____

How many CDs did Natalie sell last year?

Show All Work

Answer _____

Natalie claims that she can earn more money this year by selling only $\frac{1}{3}$ the number of CDs that she sold last year and by tripling the amount of DVDs she sold last year. Is Natalie's claim correct? Use words, numbers, and/or symbols to support your answer.

Show All Work

Grade 8 Answer Key

1. **A** (Algebra and Functions)
2. **B** (Number Sense)
3. **B** (Computation)
4. **A** (Number Sense)
5. **B** (Geometry)
6. **15** (Algebra and Functions)
7. **36** (Data Analysis and Probability)
8. **37.5** (Measurement)

9. Constructed Response Item (Algebra and Functions/Problem Solving)

- Tina: $\$37 + \$1.50c$
- Jim: $\$40 + \$1.00c$
- 6 cars

Sample Process:

Cars Washed	Tina's Pay	Jim's Pay
1	$37 + 1.5(1) = 38.5$	$40 + 1(1) = 41$
2	$37 + 1.5(2) = 40$	$40 + 1(2) = 42$
3	$37 + 1.5(3) = 41.5$	$40 + 1(3) = 43$
4	$37 + 1.5(4) = 43$	$40 + 1(4) = 44$
5	$37 + 1.5(5) = 44.5$	$40 + 1(5) = 45$
6	$37 + 1.5(6) = 46$	$40 + 1(6) = 46$

10. Constructed Response Item (Algebra and Functions/Problem Solving)

- \$1.25
- $8.5 + 1.25n$
- 6 pizzas

Sample Process:

$$\frac{14.75 - 11.00}{5 - 2} = \frac{3.75}{3} = 1.25 \text{ per topping}$$

$$11.00 - (2)1.25$$

\$8.5 for a pizza with no toppings

$$8.5 + 1.25(4) = 13.5$$

$$90 \div 13.5 = 6\frac{2}{3}$$

11. Extended Response Item (Algebra and Functions/Problem Solving)

- $2.50c + 157.50 = 780$
- 249
- Natalie's claim is not correct. She would earn \$680 which is \$100 less than last year.

$$45 \times 3.50 = 157.50$$

$$2.50c + 157.50 = 780$$

$$\underline{- 157.50 \quad -157.50}$$

$$2.50c = 622.50$$

$$c = 249 \text{ CDs sold last year}$$

$$249 \div 3 = 83 \text{ CDs and } 45 \times 3 = 135 \text{ DVDs}$$

$$83 \times \$2.50 = \$207.50$$

$$135 \times \$3.50 = \$472.50$$

$$\$472.50 + \$207.50 = \$680$$

$$680 < 780$$