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Ratio and Proportion

1. An item is priced at \$13.56. If the sales tax is 5%, what does the item cost including sales tax?

- A. \$0.68
 - B. \$20.34
 - C. \$14.24
 - D. \$27.80
-

2. At the school fall festival, the student council sold sodas as a fundraiser. The table below shows the number of sodas they sold and the cumulative total money.

Sodas Sold	Money Collected
0	\$0.00
2	\$4.20
5	\$10.50
9	\$18.90
10	\$21.00

Based on the information, what is the price per soda?

- A. \$2.10 per soda
 - B. \$1.10 per soda
 - C. \$3.15 per soda
 - D. \$3.10 per soda
-

3. Graph the line that passes through the coordinates below and determine which statement is true.

$(1, 2), (3, 4), (5, 6), (7, 8)$

- A. The line that passes through the given coordinates does not represent a proportional relationship because the line passes through the origin.
 - B. The line that passes through the given coordinates represents a proportional relationship because the line passes through the origin.
 - C. The line that passes through the given coordinates does not represent a proportional relationship because the line does not pass through the origin.
 - D. The line that passes through the given coordinates represents a proportional relationship because the line does not pass through the origin.
-

4. A line passing through which of the following pairs of coordinates represents a proportional relationship?

- A. $(1, 3)$ and $(2, 6)$
 - B. $(1, 3)$ and $(3, 6)$
 - C. $(1, 2)$ and $(2, 3)$
 - D. $(1, 1)$ and $(1, 3)$
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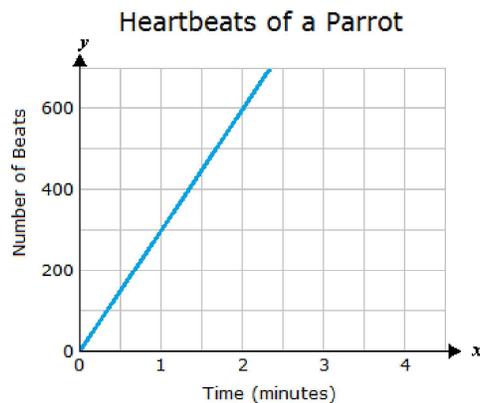
5. Tanya is training a turtle for a turtle race. For every $\frac{1}{6}$ of an hour that the turtle is crawling, he can travel $\frac{1}{20}$ of a mile. At what unit rate is the turtle crawling?

- A. $\frac{1}{120}$ of a mile per hour
- B. 120 miles per hour
- C. $\frac{13}{60}$ of a mile per hour
- D. $\frac{3}{10}$ of a mile per hour

6. Daniel watches 1 hour of television for every 2 hours of homework he does each week. If he did 10 hours of homework last week, how many hours of television did he watch?

- A. 20
- B. 5
- C. 8
- D. 10

7. The graph below represents a parrot's heartbeat.



Based on the graph, what does the point (1, 300) represent?

- A. 300 beats per second
- B. 300 beats per minute
- C. 300 parrots' heartbeats
- D. 300 beats in half a minute

8. Chase plays the piano and the cello. For every 2 hours he practices the piano, he practices the cello for 3 hours. If he practiced the piano for 5 hours last week, how many hours did he spend practicing the cello?

- A. 15
- B. 30
- C. 6
- D. 7.5

9. Beth is making fruit salad. She adds 5 grapes for every 2 strawberries. If she uses 16 strawberries, how many grapes will she use?

- A. 10
- B. 160
- C. 40

- D. 80

10. Students are working on a project which requires toothpicks. Each student receives the same number of toothpicks, t , from the teacher. Which equation can be used to find the total number of toothpicks, N , given out by the teacher for the project to s students?

- A. $N = \frac{t}{s}$
- B. $N = \frac{s}{t}$
- C. $N = s + t$
- D. $N = st$

11. Stefanie is painting her bedroom. She can paint $12\frac{1}{3}$ square feet in $\frac{1}{5}$ of an hour. How many square feet can she paint in one hour?

- A. 37
- B. $12\frac{1}{3}$
- C. $61\frac{2}{3}$
- D. $92\frac{1}{2}$

12. Ronald can read at a constant rate of p pages per minute. Which equation represents the relationship between the total number of pages, N , that Ronald can read in m minutes?

- A. $N = \frac{m}{p}$
- B. $N = \frac{p}{m}$
- C. $N = p + m$
- D. $N = pm$

13. Which of the following tables represents a proportional relationship?

A.

x	2	4	6	8
y	3	4	5	6

B.

x	2	3	4	5
y	3	6	9	12

C.

x	3	5	7	9
y	4.5	7.5	10.5	13.5

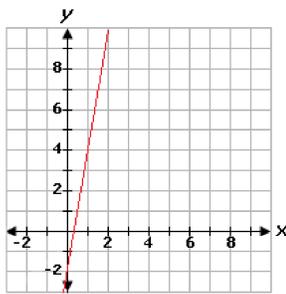
D.

x	1	4	7	10
y	0	3	6	9

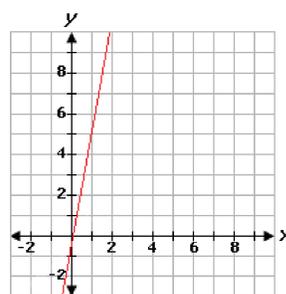
14. Ivan is an artist. He creates 1 sculpture for every 5 paintings. If he has created 40 paintings, how many sculptures has he created?

- A. 200
- B. 8
- C. 35
- D. 40

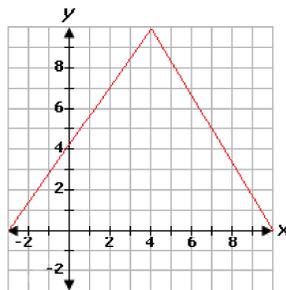
15. Which of the following graphs represents a proportional relationship?



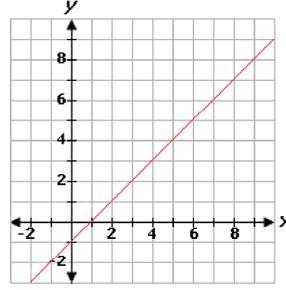
W.



X.



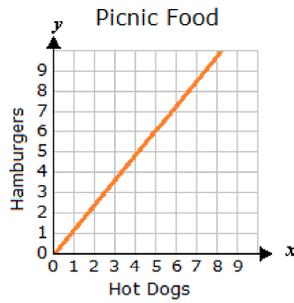
Y.



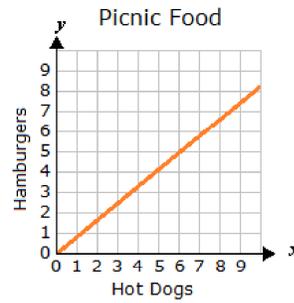
Z.

- A. Z
- B. Y
- C. X
- D. W

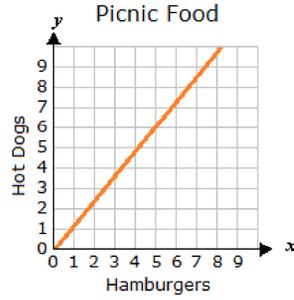
16. The ratio of hamburgers to hot dogs served at a picnic is $\frac{5}{8}$. Which graph could represent this ratio?



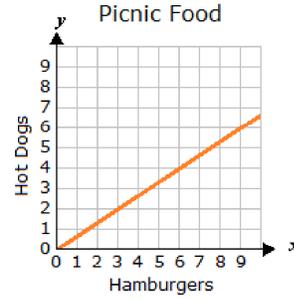
W.



X.



Y.



Z.

- A. Z
- B. W
- C. X
- D. Y

17. A recipe calls for $\frac{2}{3}$ of a cup of milk for 12 cookies. How many cups of milk are needed to make 180 cookies?

- A. 24
- B. 11
- C. 120
- D. 10

18. The value of Maggie's car decreased by 25% since last year, when she bought it. If the car is now worth \$11,000.00, how much was the car worth when she bought it?

- A. \$13,750.00
- B. \$21,176.47
- C. \$24,000.00
- D. \$14,666.67

19. In a flower garden, there are 3 tulips for every 7 daisies. If there are 24 tulips, how many daisies are there?

- A. 56
- B. 58
- C. 54
- D. 59

20. A punch recipe requires $\frac{4}{5}$ of a cup of pineapple juice for every $2\frac{1}{2}$ cups of soda. What is the unit rate of soda to pineapple juice in the punch?

- A. $1\frac{3}{5}$ cups of soda per cup of pineapple juice

- B. $6\frac{1}{4}$ cups of soda per cup of pineapple juice
- C. $3\frac{1}{8}$ cups of soda per cup of pineapple juice
- D. $\frac{8}{25}$ cup of soda per cup of pineapple juice

21. Kendra has a painting canvas that is 23 inches wide by 40 inches high. She painted a red rose, which covered 60% of the canvas.

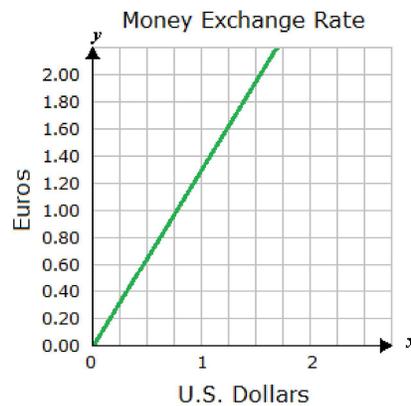
What was the area of the canvas which was covered by the red rose?

- A. 27.6 in²
- B. 552 in²
- C. 331.2 in²
- D. 920 in²

22. A college has a student to teacher ratio of 25 to 2. If there are 182 teachers at the college, how many students attend the college?

- A. 2,275
- B. 1,820
- C. 910
- D. 3,185

23. On a trip to Italy, Chandra traded her U.S. dollars for Euros, based on the graph below.



Based on the graph, what is the unit rate of Euros per dollar?

- A. 1.10 Euros per U.S. dollar
- B. 1.30 Euros per U.S. dollar
- C. 1.20 Euros per U.S. dollar
- D. 1.40 Euros per U.S. dollar

24. A TV that usually sells for \$189.69 is on sale for 30% off. If sales tax on the TV is 7%, what is the price of the TV, including tax?

- A. \$140.75
- B. \$142.08
- C. \$143.41

- D. \$255.89

25. A line passing through which of the following pairs of coordinates represents a proportional relationship?

- A. (1.25, 2.5) and (3.75, 7.5)
 B. (1.3, 3.3) and (2.3, 4.3)
 C. (1.25, 2.25) and (2.5, 5)
 D. (2.5, 5) and (3, 5.5)

26. Willie runs 2 miles in 14 minutes. If Willie runs at the same rate, how many miles can he run in 91 minutes?

- A. 17
 B. 13
 C. 15
 D. 11

27. Which of the following tables represents a proportional relationship?

A.

x	1	4	5	6
y	3	4	5	6

B.

x	1	2	3	4
y	2	3	4	6

C.

x	1	2	3	4
y	3	6	9	12

D.

x	1	4	7	13
y	3	6	9	12

28. Glenn and Helen are playing ping pong. For every 3 points that Glenn scores, Helen scores 4 points. If Glenn scores 9 points, how many points does Helen score?

- A. 12
 B. 36
 C. 7
 D. 108

29. A radio station had 84 tickets to a concert. They gave away 2 times as many tickets to listeners as to employees. How many tickets did they give away to employees?

- A. 30
 B. 28
 C. 2
 D. 3

30. Robert is writing a paper for language arts class. He can write $\frac{1}{3}$ of a page in $\frac{1}{2}$ of an hour. At what rate is Robert writing?

- A. $\frac{1}{6}$ of a page per hour
- B. $\frac{5}{6}$ of a page per hour
- C. 6 pages per hour
- D. $\frac{2}{3}$ of a page per hour

31. Mike's grandmother opened a savings account in Mike's name and deposited some money into the account. The account pays an annual simple interest rate of 4%. After 11 years, the interest earned on the account was \$3,080. How much money did Mike's grandmother deposit in the account?

- A. \$7,500
- B. \$7,000
- C. \$8,000
- D. \$6,000

32. A kitchen floor has $15\frac{1}{2}$ tiles in an area of $2\frac{1}{5}$ square feet. How many tiles are in one square foot?

- A. $7\frac{1}{22}$
- B. $\frac{22}{155}$
- C. $\frac{11}{31}$
- D. $34\frac{1}{10}$

33. Does the table below represent a proportional relationship?

x	3	4	5	6
y	-12	-16	-20	-24

- A. No, because the table has negative numbers.
- B. Yes, because all the ratios of y to x are equal to -2.
- C. No, because the ratios of y to x are not equal.
- D. Yes, because all the ratios of y to x are equal to -4.

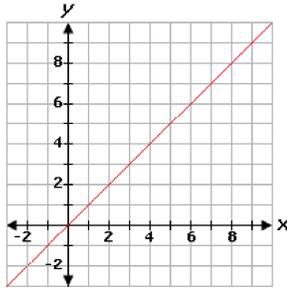
34. The table below shows the salvage value for raw steel.

Tons of Steel	Salvage Value
0	\$0.00
2	\$400.00
4	\$800.00
6	\$1,200.00
8	\$1,600.00
10	\$2,000.00

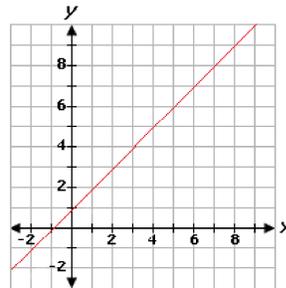
Based on the information in the table, what is the price per ton for raw steel?

- A. \$210
- B. \$200
- C. \$160
- D. \$240

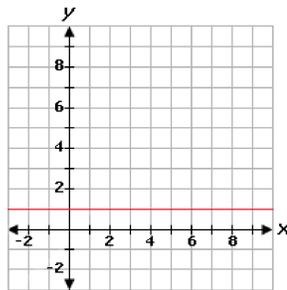
35. Which of the following graphs represents a proportional relationship?



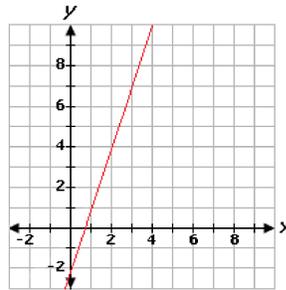
W.



X.



Y.



Z.

- A. X
- B. Y
- C. Z
- D. W

Answers

1. C
2. A
3. C
4. A
5. D
6. B
7. B
8. D
9. C
10. D
11. C
12. D
13. C
14. B
15. C
16. B
17. D
18. D
19. A
20. C

- 21. B
- 22. A
- 23. B
- 24. B
- 25. A
- 26. B
- 27. C
- 28. A
- 29. B
- 30. D
- 31. B
- 32. A
- 33. D
- 34. B
- 35. D