

Pre-Algebra Semester 2 Practice Exam A

1. There are 10 yellow and 5 purple marbles in a bag. If one marble is randomly picked from the bag, what are the odds in favor of it being yellow?

- A. 1:2
- B. 2:1
- C. 2:3
- D. 3:2

2. Patrick ordered lunch at a sandwich shop. On the menu there were 3 bread choices, 3 meat choices, and 4 cheese choices. How many different sandwiches, consisting of 1 bread choice, 1 meat choice, and 1 cheese choice, could Patrick order?

- A. 36
- B. 24
- C. 18
- D. 10

3. The data below shows the number of minutes players on a basketball team spent Exam A free throws before the big game.

Time Spent Practicing Free Throws (minutes)

45 55 50 65 40 45 60 65

Which stem-and-leaf plot accurately displays the data?

A.

Stem	Leaf
4	0 5 5
5	0 5
6	0 5 5

Key: 4|2 = 42 min

B.

Stem	Leaf
4	0 0 5
5	0 5
6	0 5 5

Key: 4|2 = 42 min

C.

Stem	Leaf
4	0 5 5
5	0 5
6	0 0 5

Key: 4|2 = 42 min

D.

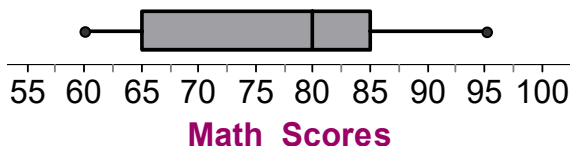
Stem	Leaf
4	0 5 5
5	5 5
6	0 5 5

Key: 4|2 = 42 min

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Use the plot below for questions 4 and 5.

The box-and-whisker plot shows the test scores of the students in a math class.



4. What is the interquartile range?
 - A. 5
 - B. 15
 - C. 20
 - D. 35

5. What percent of student scores fall between 65 and 95?
 - A. 25%
 - B. 30%
 - C. 50%
 - D. 75%

6. The chart shows prices for two different brands of taffy. The pattern of prices continues for heavier bags.

TAFFY PRICES		
Bag Weight	Brand X	Brand Y
1 lb	\$3.25	\$2.75
2 lb	\$5.75	\$4.75
3 lb	\$8.25	\$6.75
4 lb	\$10.75	\$8.75

What is the cost of a 7-pound bag of Brand Y taffy?

- A. \$12.75
- B. \$13.25
- C. \$14.75
- D. \$15.50

7. The prices of nine backpacks are \$43, \$21, \$53, \$32, \$32, \$23, \$61, \$67 and \$37. What is the median price of the backpacks?

- A. \$32
- B. \$37
- C. \$41
- D. \$46

8. There are 12 dogs in a dog show. If the judges are awarding one blue, one red, and one white ribbon, how many different ways could the ribbons be awarded?

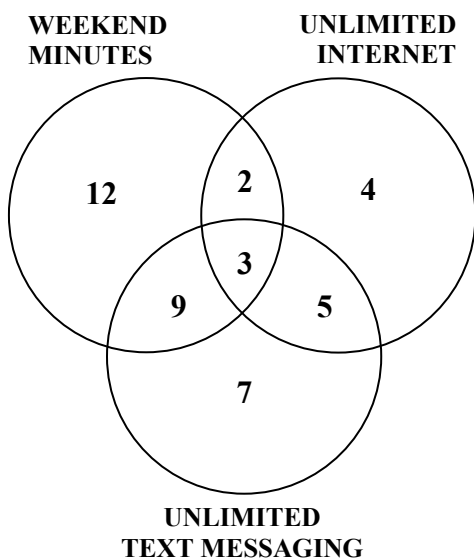
- A. 36
- B. 220
- C. 1320
- D. 1728

9. There are 8 possible toppings for an ice cream sundae. Carole may choose two different toppings for her sundae. How many different sundaes are possible?

- A. 16
- B. 28
- C. 56
- D. 64

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10. The Venn diagram below represents the numbers of students and the types of services they purchased for their cell phones.



How many students purchased both unlimited text messaging and unlimited internet?

- A. 3
- B. 5
- C. 8
- D. 19

11. A fair number cube is rolled two times. What is the probability an even number and then a number greater than 4 will be rolled?

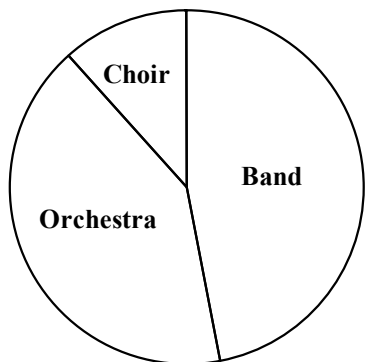
- A. $\frac{1}{8}$
- B. $\frac{1}{6}$
- C. $\frac{1}{4}$
- D. $\frac{1}{2}$

12. What is 40% of 500?

- A. 20
- B. 30
- C. 200
- D. 300

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13. The circle graph below shows the distribution of performing arts students who are in band, orchestra, or choir.

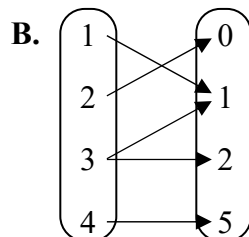
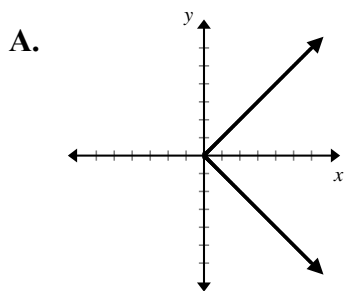


There are 300 students in the school. Approximately how many students are in choir?

- A. 15
B. 35
C. 125
D. 150
14. 48 is 75% of what number?
A. 27
B. 36
C. 64
D. 123
15. Jimmy got a raise that increased his \$6 per hour wage to \$8 per hour. What was the percent of increase in his hourly wage?
A. 25%
B. $33\frac{1}{3}\%$
C. 75%
D. $133\frac{1}{3}\%$
16. The bill for dinner is \$24. You leave an 18% tip. The sales tax is 7%. What is the total cost?
A. \$26.64
B. \$28.32
C. \$30.00
D. \$49.00
17. Sylvia deposits \$500 into a savings account that earns 2% simple annual interest. Find the balance of the account after 2 years.
A. \$520
B. \$510
C. \$20
D. \$10

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18. Which relation is a function?



C. $\{(-2, -4), (-2, -1), (0, 2), (2, 3)\}$

D.

x	1	2	3	4
y	4	4	4	4

19. What is the range of the relation below?

$\{(6, -2), (3, -1), (1, 4), (5, 2)\}$

- A. $\{-2, -1, 2, 4\}$
- B. $\{-2, -1, 1, 2, 3, 4, 5, 6\}$
- C. $\{1, 3, 5, 6\}$
- D. $\{2, 4, 5, 6\}$

20. Which equation matches the coordinates in the table below?

x	y
-2	-5
-1	-3
0	-1
1	1
2	3

- A. $y = x - 3$
- B. $y = x + 1$
- C. $y = -2x - 1$
- D. $y = 2x - 1$

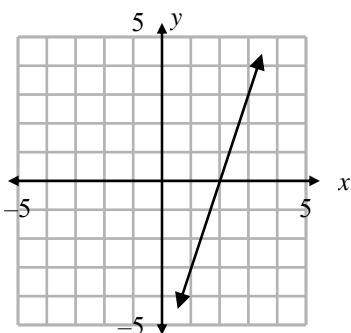
21. Which ordered pairs represent the x -intercept and y -intercept of the equation below?

$$3x - y = -6$$

- A. $(2, 0)$ and $(0, -6)$
- B. $(2, 0)$ and $(0, 6)$
- C. $(-2, 0)$ and $(0, -6)$
- D. $(-2, 0)$ and $(0, 6)$

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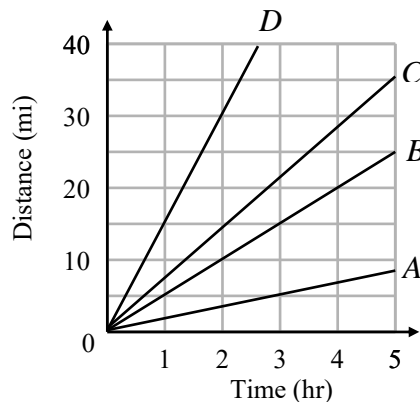
22. What is the slope of the line graphed below?



- A. 3
B. $\frac{1}{3}$
C. $-\frac{1}{3}$
D. -3
23. What is the slope of the line that passes through the points $(3, -2)$ and $(-2, -2)$?

- A. 0
B. $-\frac{1}{4}$
C. -4
D. undefined

24. A bicyclist travels at 15 miles per hour. Which line best represents this scenario?

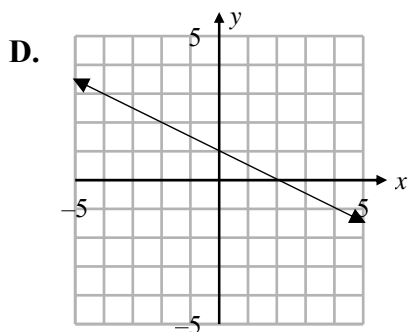
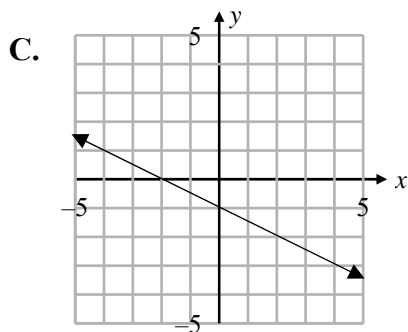
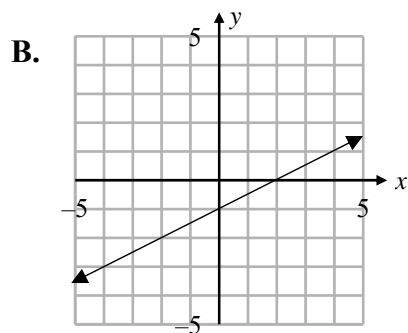
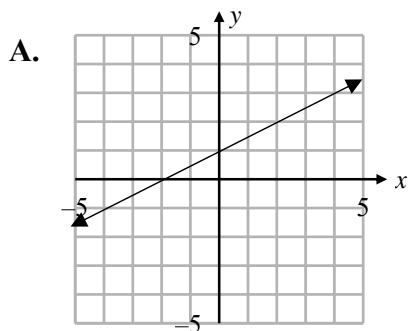


- A. A
B. B
C. C
D. D

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25. Which graph below represents the given equation?

$$y = -\frac{1}{2}x + 1$$



26. Identify the slope and the y-intercept of the line with the given equation:

$$-x + 4y = -24$$

- A. Slope is $\frac{1}{4}$; y-intercept is -6
- B. Slope is $\frac{1}{4}$; y-intercept is 6
- C. Slope is 4 ; y-intercept is -6
- D. Slope is 4 ; y-intercept is 6

27. $\sqrt{199}$ is between what two whole numbers?

- A. 198 and 200
- B. 99 and 100
- C. 14 and 15
- D. 13 and 14

28. A right triangle is shown below.

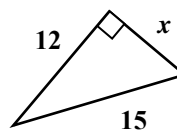


Figure is not drawn to scale.

What is the value of x ?

- A. 6
- B. 9
- C. 54
- D. 81

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29. A rectangular photograph has side lengths of 7 inches and 13 inches. To the nearest inch, how long is the diagonal of the photograph?

- A. 6 inches
- B. 11 inches
- C. 15 inches
- D. 20 inches

30. Which correctly orders the numbers from least to greatest?

- A. $\frac{1}{2} < -2 < 3.4 < \frac{\sqrt{16}}{2}$
- B. $\frac{1}{2} < -2 < \frac{\sqrt{16}}{2} < 3.4$
- C. $-2 < \frac{1}{2} < 3.4 < \frac{\sqrt{16}}{2}$
- D. $-2 < \frac{1}{2} < \frac{\sqrt{16}}{2} < 3.4$

31. What are the coordinates of the midpoint of a line segment with the given endpoints?

$(8, -6)$ and $(2, 12)$

- A. $(3, -9)$
- B. $(5, 3)$
- C. $(6, -18)$
- D. $(10, 6)$

32. What is the distance between the given points?

$(-3, 1)$ and $(2, -1)$

- A. 1
- B. 5
- C. $\sqrt{21}$
- D. $\sqrt{29}$

33. An isosceles triangle has a perimeter of 20 meters. The length of the base is 6 meters. What are the lengths of the other two sides?

- A. 4 m, 10 m
- B. 5 m, 9 m
- C. 6 m, 6 m
- D. 7 m, 7 m

34. The ratio of the angle measures in a triangle is 1 : 2 : 6. Classify the triangle by its angle measures.

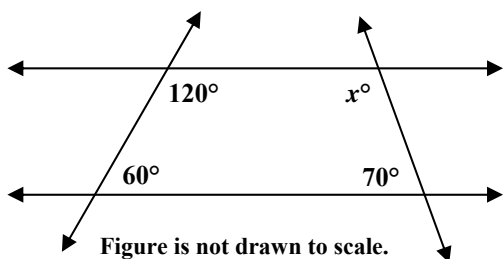
- A. acute
- B. equiangular
- C. obtuse
- D. right

35. A quadrilateral has 4 congruent sides and 2 congruent obtuse and 2 congruent acute angles. Which name below best classifies this figure?

- A. rectangle
- B. rhombus
- C. square
- D. trapezoid

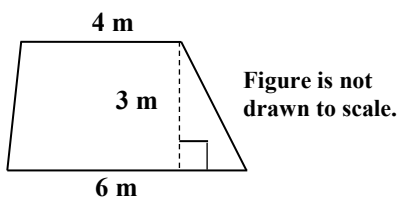
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36. What is the value of x in the figure below?



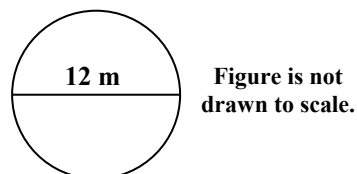
- A. 20
- B. 60
- C. 110
- D. 160

37. What is the area of the trapezoid shown below?



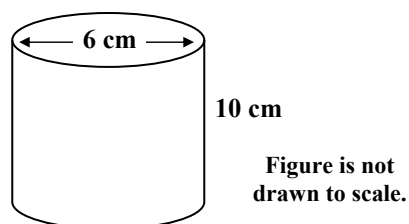
- A. 15 m^2
- B. 18 m^2
- C. 30 m^2
- D. 72 m^2

38. What is the area of the circle shown below?



- A. $6\pi \text{ m}^2$
- B. $24\pi \text{ m}^2$
- C. $36\pi \text{ m}^2$
- D. $144\pi \text{ m}^2$

39. What is the surface area of the cylinder below?



- A. $60\pi \text{ cm}^2$
- B. $72\pi \text{ cm}^2$
- C. $78\pi \text{ cm}^2$
- D. $90\pi \text{ cm}^2$

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40. What is the volume of the cylinder below?

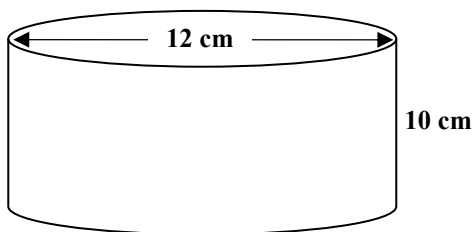


Figure is not drawn to scale.

- A. $120\pi \text{ cm}^3$
B. $360\pi \text{ cm}^3$
C. $1200\pi \text{ cm}^3$
D. $1440\pi \text{ cm}^3$
41. Building plans for a swimming pool in the shape of a rectangular prism show a length of 20 feet, width of 10 feet, and depth of 4 feet. The contractor decides to increase the length by 5 feet. How many more cubic feet of water will the new swimming pool hold?
- A. 200 ft^3
B. 800 ft^3
C. 1000 ft^3
D. 1800 ft^3
42. Which expression below is not a binomial?
- A. $x - y$
B. $x + y$
C. $\frac{x}{y} - 1$
D. $3xy$

43. Find the difference.

$$(5x - 8) - (9x - 6)$$

- A. $-4x - 14$
B. $-4x - 2$
C. $4x - 2$
D. $14x - 14$

44. Find the product.

$$3x^2(4x - 3)$$

- A. $12x^3 - 9x^2$
B. $12x^3 - 3$
C. $12x^2 - 9x$
D. $12x^2 - 3$

45. What are the next three terms in the sequence below?

$$-13, -9, -5, -1, \dots$$

- A. 1, 5, 9
B. 3, 7, 11
C. 4, 8, 12
D. 5, 9, 13

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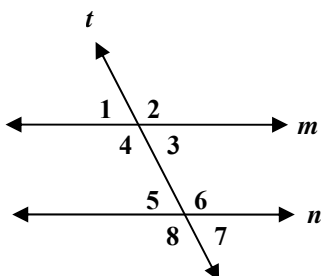
46. What are the next three terms in the sequence below?

$$-\frac{3}{4}, \frac{3}{2}, -3, 6, \dots$$

- A. $-9, 12, -15$
 B. $-12, 24, -36$
 C. $-12, 24, -48$
 D. $-15, 24, -33$
47. Two angles are complementary. The measure of the first angle is twice the measure of the second angle. What is the measure of the smaller angle?

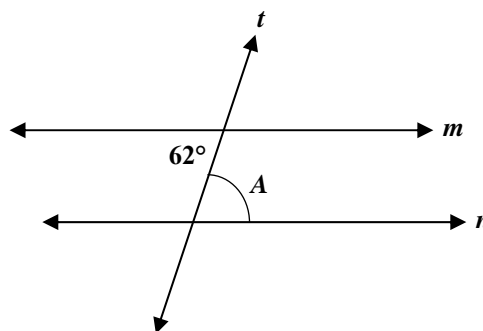
- A. 30°
 B. 45°
 C. 60°
 D. 90°

48. Parallel lines m and n are cut by transversal t . Which statement is true?



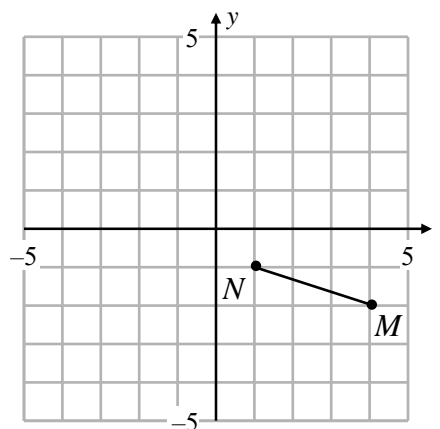
- A. $\angle 7 \cong \angle 1$
 B. $\angle 6 \cong \angle 7$
 C. $\angle 3 \cong \angle 8$
 D. $\angle 1 \cong \angle 6$

49. Parallel lines m and n are cut by transversal t . Find the measure of $\angle A$.



- A. 28°
 B. 62°
 C. 118°
 D. 128°

50. What are the coordinates of M' and N' after \overline{MN} is reflected across the x -axis?



- A. $M'(-1, -2), N'(-4, -1)$
 B. $M'(-4, -2), N'(-1, -1)$
 C. $M'(4, 0), N'(1, 1)$
 D. $M'(4, 2), N'(1, 1)$



Pre-Algebra Semester 2 Practice Exam A Free Response

1. The data below are the test scores of students in two different English classes.

Class A: 30, 42, 50, 58, 60, 62, 70, 75, 76, 77, 79, 82, 83, 85, 96

Class B: 50, 62, 65, 70, 73, 74, 76, 78, 78, 79, 80, 81, 82, 82, 83

- A. Create a box-and-whisker plot for each set of data. Label each plot and any key points.
- B. Using the graphs you created, which class did better on the test overall? Explain your thinking.

A large grid of 20 columns and 30 rows, intended for students to draw box-and-whisker plots and provide written explanations for the data analysis.

**Pre-Algebra Semester 2 Practice Exam A
Free Response**

2. You and a friend are knitting a sock that will be 11 inches long. Your friend knits the first 2 inches then gives you the sock to finish. You knit at a rate of 1.5 inches per hour.
- A. Write and graph an equation that shows the length L if you knit h hours. Be certain to label the graph.
- B. Determine how many hours it will take you to complete the sock. Show your work.

A large grid for graphing and showing work. The grid is 20 columns wide and 30 rows high.

Pre-Algebra Semester 2 Practice Exam A Free Response

3. Ann walks 9 blocks due west and 12 blocks due north to get to school. She returns home along a diagonal path.
- A. Draw and label a diagram of Ann's route. Determine the distance of the diagonal path that Ann followed. Show your work.
- B. Dave bikes 27 blocks due south and then 36 blocks due east to get to school. Both Ann and Dave follow a similar shaped route. How many times greater is the diagonal distance Dave traveled compared to the diagonal distance Ann traveled? Explain your thinking.

