

Summer Assignment for students entering Advanced 8th grade in the Fall of 2019

Please complete each problem showing your work on a separate piece of paper and attach it in order to this page. Work should be numbered and in order with your name at the top of each page. This will be the first assignment for the 2019-2020 school year and will be due on the first day of school.

Name _____

Placement Test

1. Between which two integers does the value of $\sqrt{88}$ lie?

A 1 and 2 C 9 and 10
B 8 and 9 D 87 and 89

2. The lengths in centimeters of four line segments are shown below.

$$3.12, 3.24, 3\frac{1}{4}, \sqrt{10}$$

Which list shows the lengths in order from **least to greatest**?

A $3.12, 3\frac{1}{4}, 3.24, \sqrt{10}$

B $3.12, \sqrt{10}, 3.24, 3\frac{1}{4}$

C $\sqrt{10}, 3.12, 3.24, 3\frac{1}{4}$

D $3.12, 3.24, 3\frac{1}{4}, \sqrt{10}$

3. James wrote the number 8,980,000 in scientific notation. Which number did he write?

A 8.98×10^{-6} C 89.8×10^5
B 8.98×10^{-5} D 8.98×10^6

4. Erica wrote the number 3.24×10^{-3} in standard form. Which number did she write?

A 0.00324 C 0.324
B 0.0324 D 3240

5. What is the slope of the line described by the data in the table below?

x	-1	1	3	5
y	3	8	13	18

A $\frac{2}{5}$ C $\frac{5}{4}$
B $\frac{2}{3}$ D $\frac{5}{2}$

6. Which of the following equations represents a proportional relationship?

A $y = 3x$ C $y = \frac{3}{x}$

B $y = \frac{1}{2}x + 1$ D $y = x + \frac{1}{2}$

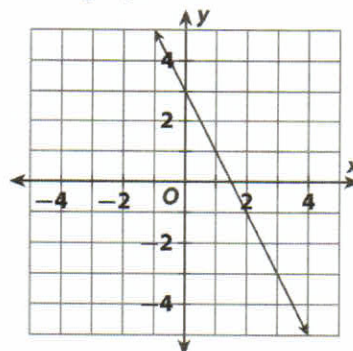
7. The points $A(0, 0)$, $B(2, 2)$, $C(3, 3)$, and $D(5, 5)$ all lie on the line $y = x$. Ana calculated the slopes of \overline{AB} and \overline{CD} . What can she conclude?

A The slopes are the same.
B The slope of \overline{AB} is greater than the slope of \overline{CD} .
C The slope of \overline{CD} is greater than the slope of \overline{AB} .
D The slopes of \overline{AB} and \overline{CD} are negative.

8. Annabelle's total pay varies directly with the number of hours she works. If she works 4 hours, she earns \$100. How much does Annabelle earn if she works 6 hours?

A \$90 C \$150
B \$120 D \$300

9. Which of the following is the equation of the line graphed below?



A $y = -2x + 3$ C $y = -3x + 3$
B $y = -2x + 5$ D $y = -3x + 2$

Placement Test

10. Which equation shows the relationship in the table below?

x	5	8	9	11
y	10	16	18	22

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

11. Which of the following tables represents a function?

A

x	1	1	4	5
y	2	5	2	6

B

x	1	-1	4	5
y	2	3	4	-3

C

x	0	1	2	2
y	2	3	3	4

D

x	0	1	2	1
y	-1	0	1	3

12. Which of the following sets of ordered pairs does not represent a function?

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

B $\{(-1, 3), (2, 3), (6, 5), (7, 3)\}$

C $\{(1, 2), (1, 3), (-4, 5), (3, 8)\}$

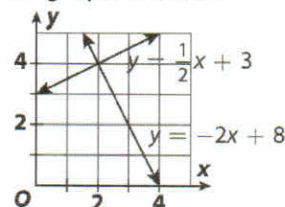
D $\{(-1, 2), (2, 2), (4, 2), (3, 2)\}$

13. Tonya and Carmen are traveling at the same speed. Tonya drives 4 hours. Carmen drives another half hour and goes 15 more miles.

Which equation can be solved to find how fast the cars are going?

- A $4x + 15 = 4.5x$
B $4x + 15 = 3.5x$
C $2.5x + 15 = 4x$
D $4.5x + 15 = 4x$

14. What is the solution of the system of equations graphed below?



- A $(-1, 1)$ C $(2, 2)$
B $(2, 4)$ D $(0, 3)$

15. What is the solution to the system of equations shown below?

$$\begin{cases} y = -\frac{1}{2}x - 6 \\ 2y - 3x = -8 \end{cases}$$

- A $(-1, -5.5)$ C $(0, 3)$
B $(-1, 5.5)$ D $(0, 8)$

16. Ben's Bikes charges \$15.50 per hour to rent a bicycle and helmet. Cathie's Bike Shop charges \$9.25 per hour for the bike and a flat fee of \$12.50 for the helmet rental. For what number of hours are the total charges at both shops the same?

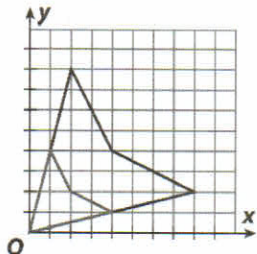
- A 1 h C 3 h
B 2 h D 4 h

17. The vertices of a triangle are located at the points $A(1, 1)$, $B(2, -3)$, and $C(5, 0)$. The triangle is translated 4 units down, then reflected across the x -axis to obtain triangle $A'B'C'$. What are the coordinates of the vertices of triangle $A'B'C'$?

- A $A'(-1, 3)$, $B'(-2, 7)$, $C'(-5, 4)$
B $A'(-1, -3)$, $B'(-2, -7)$, $C'(-5, -4)$
C $A'(1, -3)$, $B'(2, -7)$, $C'(5, -4)$
D $A'(1, 3)$, $B'(2, 7)$, $C'(5, 4)$

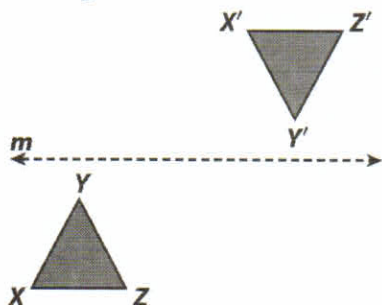
Placement Test

18. The gray figure is the image of the black figure after a dilation.



Which represents the dilation?

- A $(x, y) \rightarrow \left(\frac{1}{4}x, \frac{1}{4}y\right)$
 B $(x, y) \rightarrow \left(\frac{1}{2}x, \frac{1}{2}y\right)$
 C $(x, y) \rightarrow (2x, 2y)$
 D $(x, y) \rightarrow (4x, 4y)$
19. Jerlyn applied a sequence of transformations to obtain triangle $X'Y'Z'$ from triangle XYZ as shown below.



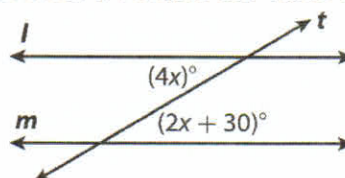
Which of the following describes the sequence of transformations?

- A a translation followed by a reflection across line m
 B a translation followed by a 180° counterclockwise rotation
 C dilation with a scale factor of 2
 D a reflection across line m followed by a 180° rotation

20. Daria applied a transformation to triangle ABC to obtain triangle $A'B'C'$. The two triangles are **not** congruent. Which of the following could be the transformation Daria applied?

- A translation C dilation
 B rotation D reflection

21. In the diagram below, lines l and m are parallel. Both are intersected by transversal t . What is the value of x ?

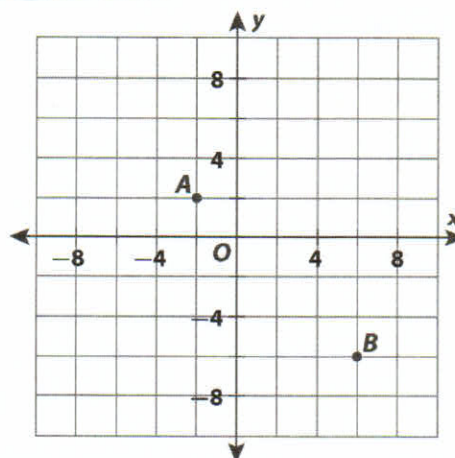


- A 5 C 30
 B 15 D 45

22. The measures of three angles of a triangle are $(2x)^\circ$, $(3x)^\circ$, and $(x + 60)^\circ$. What is the value of x ?

- A 20 C 40
 B 30 D 50

23. On the grid below, what is the distance between points A and B? Round to the nearest tenth.



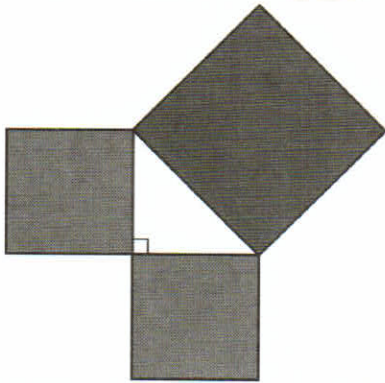
- A 8.2 units C 10.8 units
 B 9.9 units D 11.3 units

Placement Test

24. A diagonal shortcut across a rectangular lot is 130 feet. The lot is 50 feet long. What is the other dimension of the lot?

- A 60 ft C 120 ft
B 90 ft D 150 ft

25. How can the diagram below be used to explain the Pythagorean theorem?



- A The area of the black square is equal to the sum of the areas of the gray squares.
B The sum of the areas of the gray squares is less than the area of the black square.
C The perimeter of the triangle is equal to one-fourth of the total perimeter of the three squares.
D The area of the black square is equal to the area of the triangle.

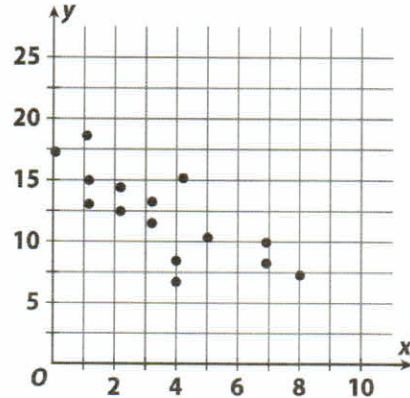
26. The formula for the volume of a cylinder is $V = Bh$. Which of the following is a verbal description of this volume?

- A the area of the base of the cylinder multiplied by its height
B the radius of the base of the cylinder multiplied by its height
C the lateral area of the cylinder multiplied by its height
D the circumference of the base of the cylinder multiplied by its height

27. Ryan drew a cylinder and a cone with identical bases and heights. Which of the following is true?

- A The volumes are the same.
B The volume of the cylinder is three times the volume of the cone.
C The volume of the cone is three times the volume of the cylinder.
D The volume of the cylinder is four-thirds the volume of the cone.

28. Which of the following best describes the relationship between the data displayed in the scatter plot below?



- A positive linear association
B negative linear association
C no association
D quadratic association

29. Tania analyzed the relationship between student test scores and the number of hours studied. She calculated the trend line to be $y = 6.8x + 60$, where x is the number of hours studied and y is the score. Which is closest to the score for a student who studied 3 hours?

- A 80 C 90
B 85 D 95