

TEST NAME: **Math 1 Q3 B3 March 07**  
TEST ID: **2938607**  
GRADE: **09 - Ninth Grade**  
SUBJECT: **Mathematics**  
TEST CATEGORY: **My Classroom**

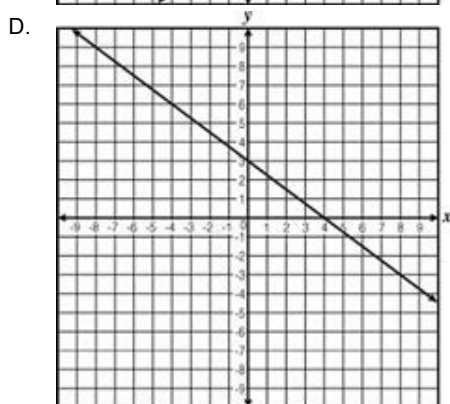
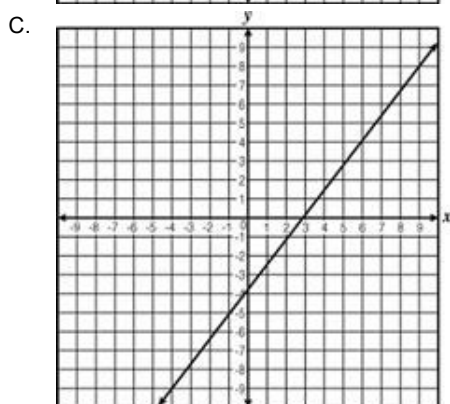
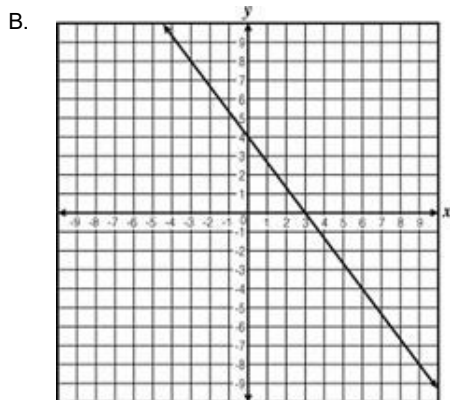
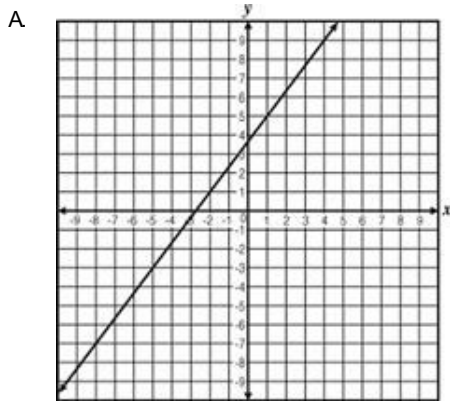
Student: \_\_\_\_\_

Class: \_\_\_\_\_

Date: \_\_\_\_\_

1. Which points lie on the graph of  $2x - 3y = 6$ ?
  - A.  $(0, 2)$  and  $(-3, 0)$
  - B.  $(2, 0)$  and  $(0, -3)$
  - C.  $(3, 0)$  and  $(0, -2)$
  - D.  $(0, 3)$  and  $(-2, 0)$

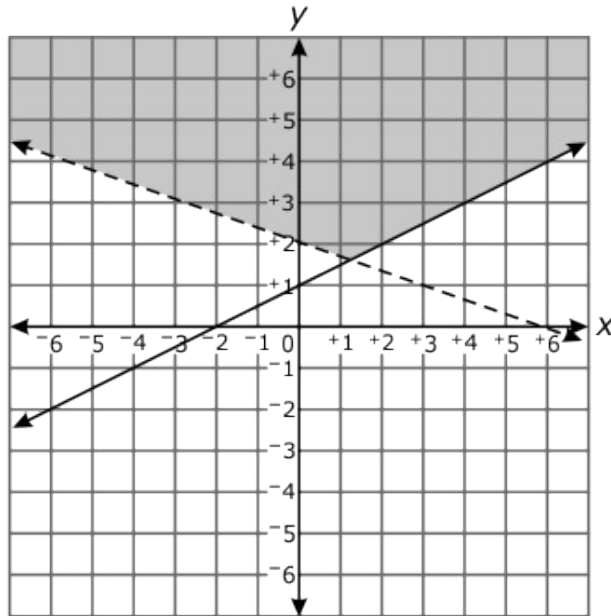
2. Which graph represents the line  $3y + 4x = 12$  ?



3. Which of the following points lies on the line that contains the points (1, 2) and (0, -2)?

- A. (1, 0)
- B. (1, 4)
- C. (2, 6)
- D. (5, 3)

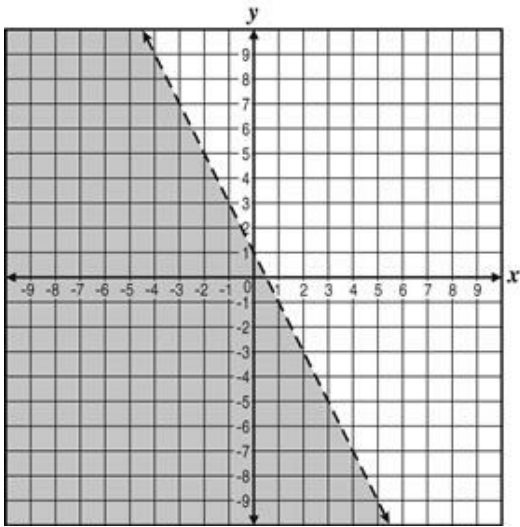
4. Which system of inequalities is graphed below?



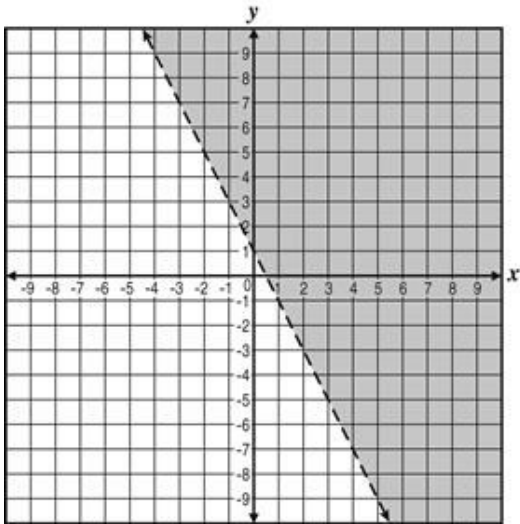
- A.  $x - 3y > 6$   
 $x + 2y \leq -2$
- B.  $x - 3y < 6$   
 $x + 2y \geq -2$
- C.  $x + 3y > 6$   
 $x - 2y \leq -2$
- D.  $x + 3y < 6$   
 $x - 2y \geq -2$

5. In which graph does the shaded region represent the solution for the inequality  $y + x > 1 - x$ ?

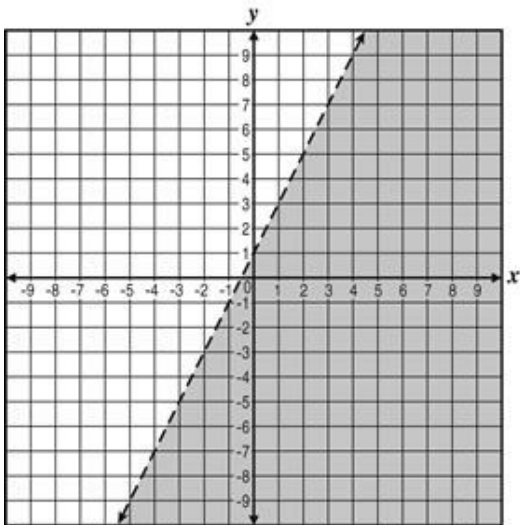
A.



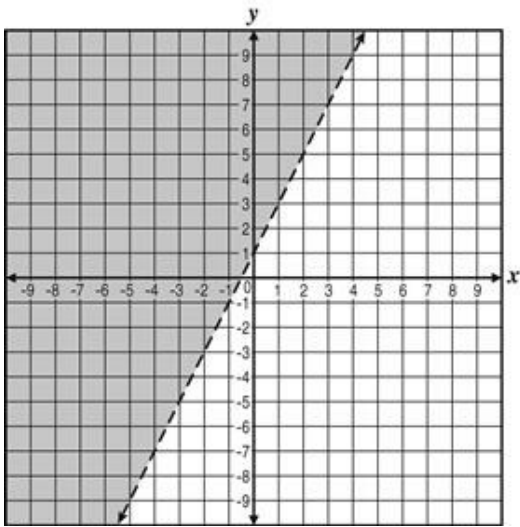
B.



C.

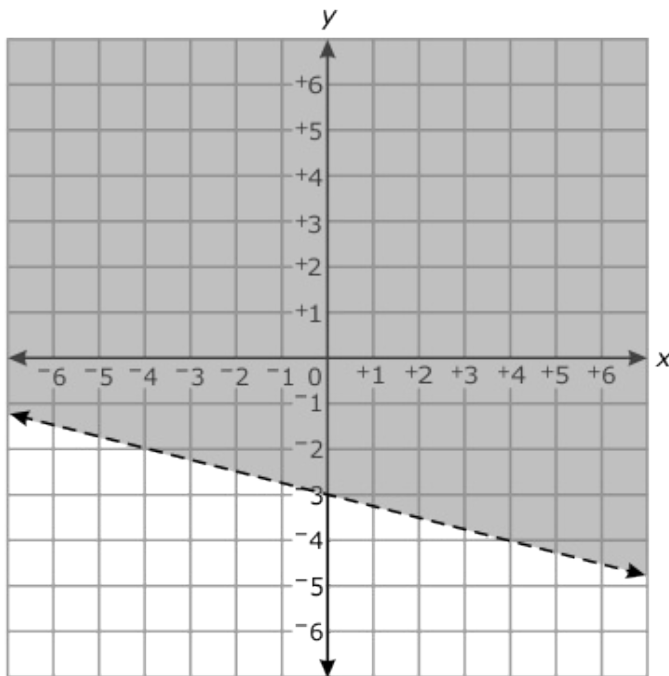


D.

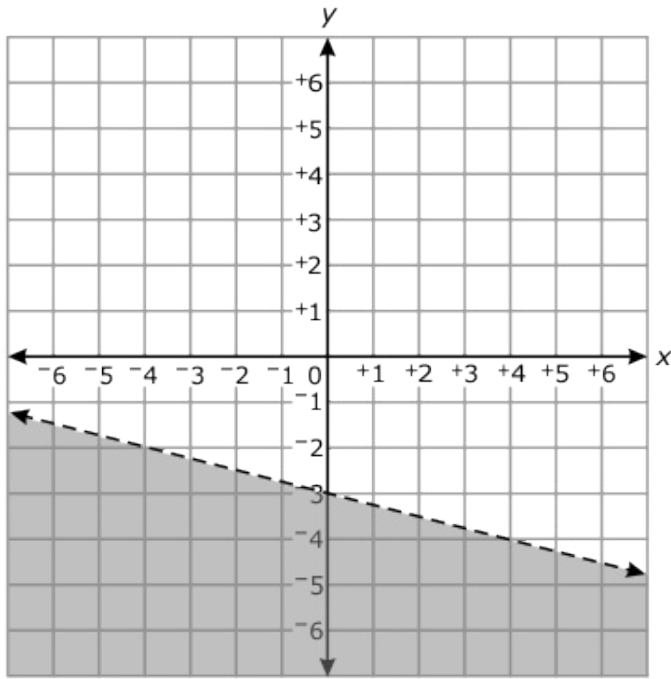


6. Which is the graph of the inequality  $2x - 4y > 3x + 12$ ?

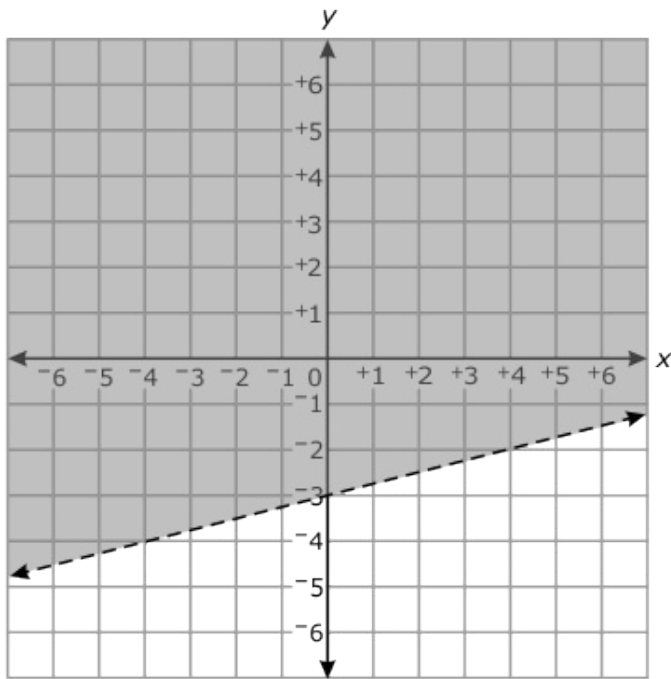
A.



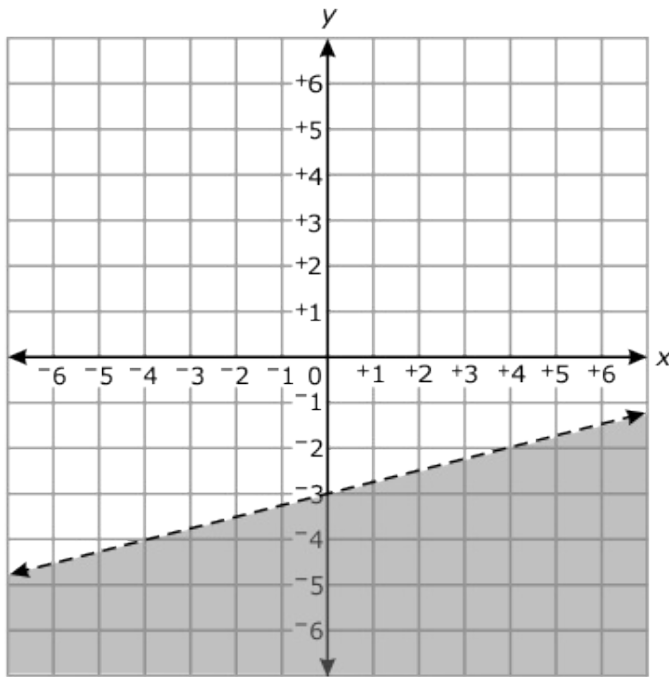
B.



C.



D.



7. What is the value of  $x$  for  $-14(6x - 3) + 4x - 21 = 36 - 3(10x + 4)$ ?

- A.  $-\frac{3}{50}$
- B.  $-\frac{19}{70}$
- C.  $-\frac{37}{50}$
- D.  $-\frac{47}{70}$

8. What is the value of  $x$  in the equation  $\frac{3}{4}x + 5 = \frac{1}{5}x - \frac{21}{20}$ ?

- A. -11
- B. -4
- C. 4
- D. 20



9. What is the solution to  $-8x + 3(2x - 4) \geq 9x - 1$ ?
- A.  $x \geq 1$
  - B.  $x \leq 1$
  - C.  $x \geq -1$
  - D.  $x \leq -1$
10. What is the value of  $x$  in the equation  $\frac{3}{4}(x - 4) = \frac{2}{3}(x + 1)$ ?
- A.  $-\frac{7}{36}$
  - B.  $\frac{1}{4}$
  - C. 44
  - D. 60
11. Jill bought four notebooks and three packs of paper for \$23.75. A notebook costs four times as much as a pack of paper. What is the cost of one pack of paper?
- A. \$1.25
  - B. \$2.19
  - C. \$3.75
  - D. \$5.00
12. Six times a number plus three times a second number is 27. The second number is one more than two times the first number. What is the second number?
- A. 2
  - B. 3
  - C. 4
  - D. 5

13. Francis bought two dresses and one pair of shoes for \$70.50, before tax. The shoes cost \$15.00 more than one dress. How much did the pair of shoes cost?
- A. \$18.50
  - B. \$28.50
  - C. \$33.50
  - D. \$38.50

14. A system of equations is shown below.

$$\begin{aligned} -6x + 2y &= -2 \\ y &= 5x + 1 \end{aligned}$$

What is the value of  $x + y$ ?

- A. -5
  - B. -3
  - C. 1
  - D. 3
15. The length of a rectangle is 4 cm less than twice the width. The perimeter of the rectangle is 58 cm. What is the length of the rectangle?
- A. 11 cm
  - B. 18 cm
  - C. 27 cm
  - D. 29 cm

16. A sequence is shown below.

32, 26, 20, 14, ...

Which explicit formula can be used to determine the  $n$ th term of the sequence?

- A.  $a_n = 6n + 38$
- B.  $a_n = 6n + 32$
- C.  $a_n = -6n + 38$
- D.  $a_n = -6n + 32$

17. Marcus dropped a ball from a height of 400 cm. The sequence below shows the height of the ball, in cm, during its first four bounces.

240, 144, 86.4, 51.84, ...

Which formula could be used to determine the height of the ball after  $n$  bounces?

- A.  $h(n) = 400(0.60)^n$
- B.  $h(n) = 400(0.60)^{(n-1)}$
- C.  $h(n) = 240(0.60)^n$
- D.  $h(n) = 240(0.60)^{(n-1)}$

18. The function  $f(x) = 12,500(0.89)^x$  models the value of a car  $x$  years after its purchase. Which statement is true about the value of the car?

- A. The value of the car is decreasing at a rate of 11% per year.
- B. The value of the car is decreasing at a rate of 89% per year.
- C. The value of the car is increasing at a rate of 11% per year.
- D. The value of the car is increasing at a rate of 89% per year.

19. Which function could represent a population that is growing at a rate of 15% per year,  $t$ ?

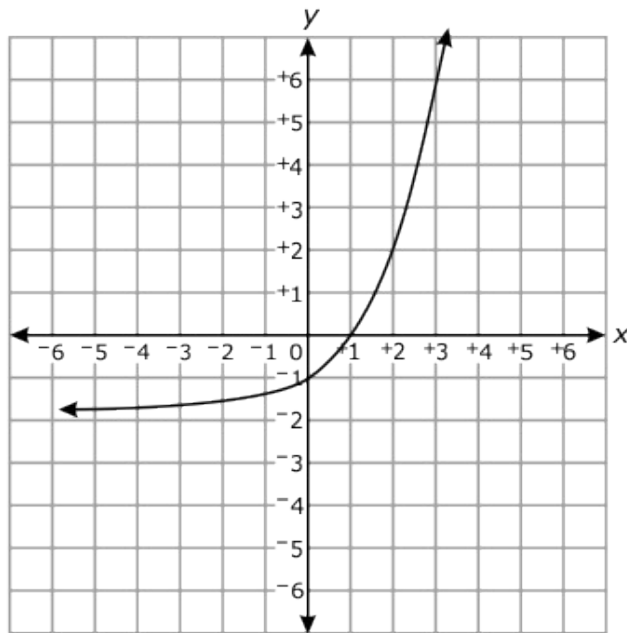
- A.  $P = 1,500(0.85)^t$
- B.  $P = 0.85(1,500)^t$
- C.  $P = 1,500(1.15)^t$
- D.  $P = 1.15(1,500)^t$

20. Two exponential functions are shown below.

**Function 1**

<b><math>x</math></b>	3	5	7	9
<b><math>f(x)</math></b>	2	8	32	128

**Function 2**



What is the distance between the  $y$ -intercepts of the two functions?

- A. 0.75 unit
- B. 1.25 units
- C. 2 units
- D. 3 units

21. Suppose a bacteria is introduced to two different solutions in separate petri dishes. The bacteria in the first solution grow at a rate modeled by the function  $G(t) = (1.40)^t$ . The bacteria in the second solution grow in accordance with the data displayed in the table below.

$t$	1	2	3	4	5	6
$H(t)$	3.6	4.3	5.2	6.2	7.5	9.0

Which statement **best** describes the growth rates exhibited within the two different solutions?

- A. The bacteria grow at the same rate in both solutions.
  - B. The bacteria grow at a slower rate in the first solution.
  - C. The bacteria grow at a faster rate in the first solution.
  - D. The bacteria decay in the first solution and grow in the second solution.
22. The function  $f(x) = 12,500 - 800x$  represents the resale value of Joe's car as it depreciates  $x$  years after its purchase. The table below shows the value of Adam's car as it depreciates linearly  $x$  years after its purchase.

<b>Years after Purchase</b>	1	3	5
<b>Resale Value</b>	\$11,200	\$7,400	\$3,600

What is the difference between the amount the resale value changes each year for the two cars?

- A. \$600
  - B. \$800
  - C. \$1,100
  - D. \$2,700
23. What is the range of the function  $y = 3x - 1$  for the domain  $4 \leq x \leq 8$ ?
- A.  $\frac{4}{3} \leq y \leq \frac{8}{3}$
  - B.  $\frac{5}{3} \leq y \leq 3$
  - C.  $2 \leq y \leq 4$
  - D.  $11 \leq y \leq 23$

24. The cost to rent tools from Art's Tool Supply is a flat fee of \$50 plus \$30 per hour for a minimum 1 hour and a maximum of 10 hours. Based on this linear relationship and the number of hours, what is the range in interval notation?

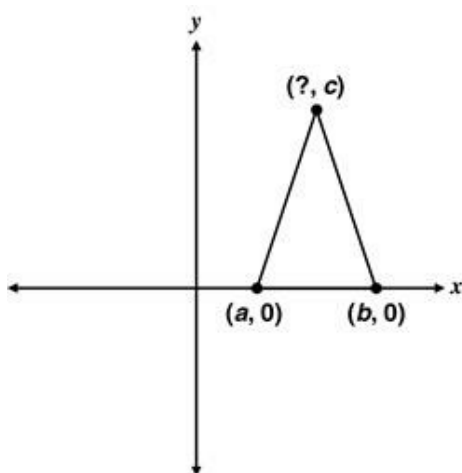
- A.  $(-\infty, 350)$
- B.  $(-\infty, 800]$
- C.  $[80, 350]$
- D.  $[80, 530]$

25. Which equation does NOT represent a function?

- A.  $y = 12$
- B.  $x = y^2 - 9$
- C.  $y = 3x^2 - 5$
- D.  $3x + 4y = 6$

26. The vertices of a triangle are located at  $(-3, -1)$ ,  $(2, 3)$ , and  $(5, 2)$ . Record the triangle's perimeter to the nearest whole number.

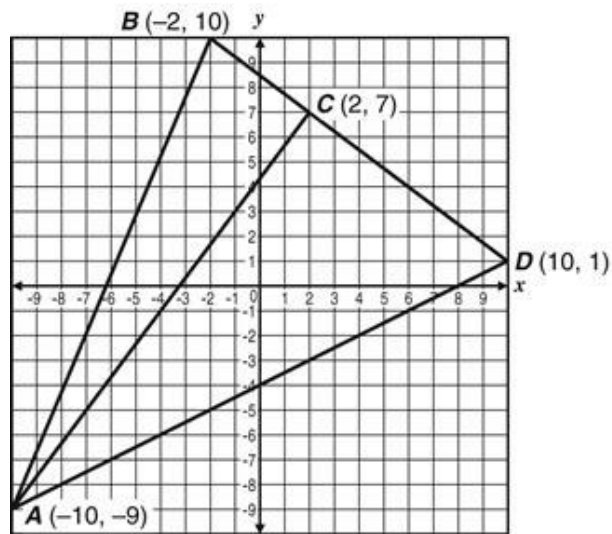
27. The coordinates of the vertices of an isosceles triangle are shown. The  $x$ -coordinate of one of the vertices is missing.



Which expression represents the missing  $x$ -coordinate?

- A.  $a + b$
- B.  $b - a$
- C.  $\frac{a + b}{2}$
- D.  $\sqrt{a^2 + b^2}$

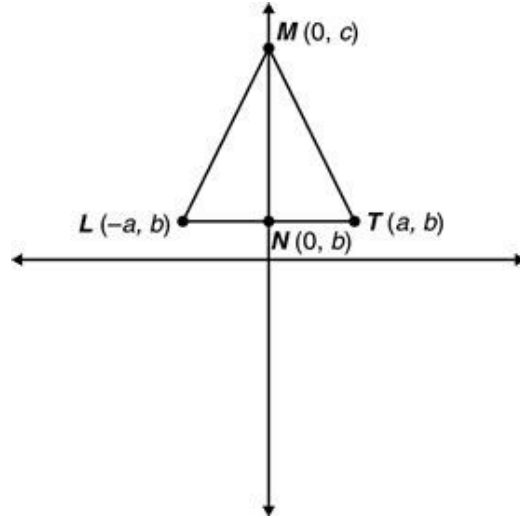
28. In the figure graphed below,  $\overline{AC}$  and  $\overline{BD}$  are perpendicular.



What is the area of  $\triangle ABD$ , in square units?

- A. 150
- B. 175
- C. 200
- D. 225

29. A student is using coordinate geometry to prove  $\triangle LMN \cong \triangle TMN$ , as shown on the grid below.

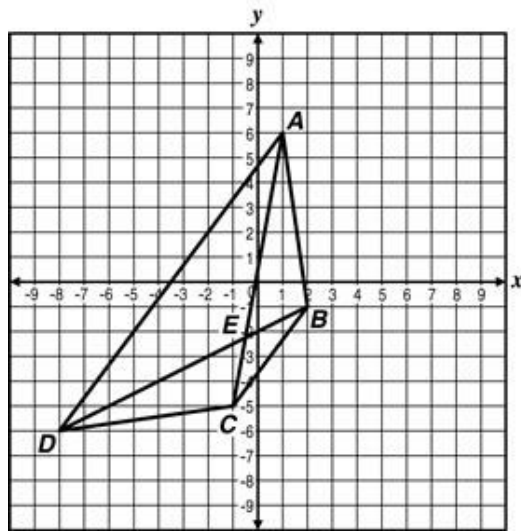


Which equation should be used to prove  $\overline{LM} \cong \overline{MT}$ ?

- A.  $\sqrt{(-a-a)^2 + (b-b)^2} = \sqrt{(a+a)^2 + (b-b)^2}$
- B.  $\sqrt{(0+a)^2 + (c-b)^2} = \sqrt{(a-0)^2 + (b-c)^2}$
- C.  $\frac{b-c}{-a-0} = \frac{b-b}{a+a}$
- D.  $\frac{c-b}{0-a} = \frac{c-b}{0+a}$



30. Trapezoid  $ABCD$  is shown on the grid below.



Which of the following could be used to prove that  $ABCD$  is an isosceles trapezoid?

- A.  $\overline{AC} \cong \overline{BD}$
- B.  $\overline{AE} \cong \overline{EC}$  and  $\overline{DE} \cong \overline{EB}$
- C. The slope of  $\overline{AD}$  and the slope of  $\overline{BC}$  are both  $\frac{4}{3}$ .
- D. The slope of  $\overline{AB}$  is the opposite reciprocal of the slope of  $\overline{DC}$ .

31. Which expression is equivalent to  $\frac{f^2 g^3 h^4}{f^9 g h^5}$ ?

- A.  $f^7 g^2 h$
- B.  $f^{11} g^4 h^9$
- C.  $\frac{g^2}{f^7 h}$
- D.  $\frac{g^3}{f^7 h}$

32. Alfred is simplifying  $(5x^2)^3 + 5(x^4)^{-1}$ .

**Step 1:**  $(5x^2)^3 + 5(x^4)^{-1} = 125x^6 + \frac{5}{x^4}$

**Step 2:**  $= \frac{125x^{10} + 5x^4}{x^4}$

**Step 3:**  $= \frac{5x^4(25x^6 + 1)}{x^4}$

**Step 4:**  $= 5(25x^6 + 1)$

**Step 5:**  $= 125x^6 + 1$

Which of the following is the first incorrect step?

- A. Step 1
- B. Step 2
- C. Step 3
- D. Step 5