

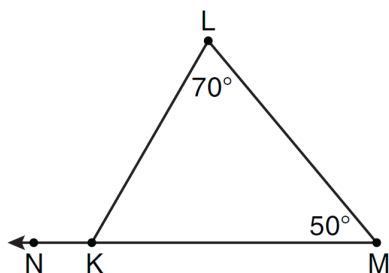
1. What is the image of the point $(-5,2)$ under the translation $T_{3,-4}$?

- (1) $(-9,5)$ (2) $(-15,-8)$ (3) $(-8,6)$ (4) $(-2,-2)$

2. What is the slope of a line that whose equation is $3x + 4y = 12$?

- (1) $-\frac{3}{4}$ (2) $\frac{4}{3}$ (3) $\frac{3}{4}$ (4) $-\frac{4}{3}$

3. In the diagram of $\triangle KLM$ below, $m\angle L = 70$, $m\angle M = 50$ and \overline{MK} is extended through N .



What is the measure of $\angle LKN$?

- (1) 60° (2) 300° (3) 120° (4) 180°

4. The transformation R_{90° maps point $(5,3)$ onto the point whose coordinates are

- (1) $(3,5)$ (2) $(-3,5)$ (3) $(3,-5)$ (4) $(5,-3)$

5. Reflecting $(5,1)$ in the y -axis yields an image of

- (1) $(-5,1)$ (2) $(-5,-1)$ (3) $(5,-1)$ (4) $(5,1)$

6. If $\triangle ABC \cong \triangle JKL \cong \triangle RST$, then \overline{BC} must be congruent to

- (1) \overline{JK} (2) \overline{JL} (3) \overline{ST} (4) \overline{RS}

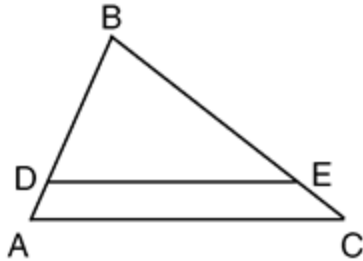
7. The area of a square is represented by $36x^2$. Which expression represents the length of each side of the square?

- (1) $6x$ (2) $9x^2$ (3) $9x$ (4) $6x^2$

8. The equation of a line is $3y + 2x = 12$. What is the slope of the line parallel to the given line?

(1) $\frac{2}{3}$ (2) $-\frac{3}{2}$ (3) $-\frac{2}{3}$ (4) $\frac{3}{2}$

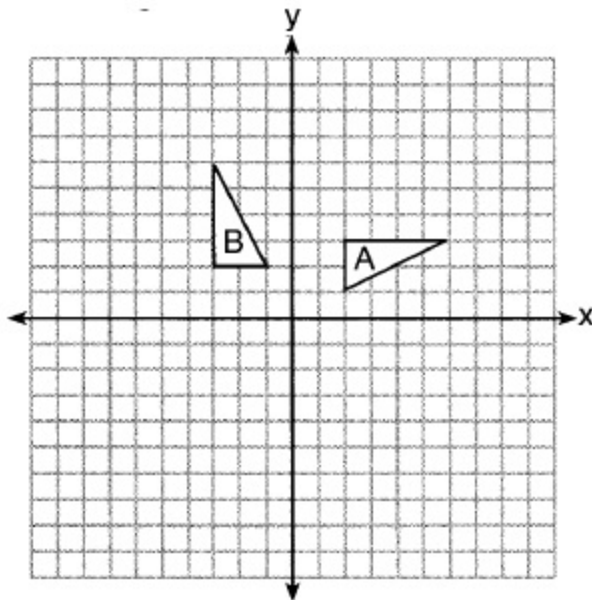
9. In the accompanying diagram, $\overline{AC} \parallel \overline{DE}$, $AB = 10$, $BC = 15$, and $BD = 8$.



What is the length of \overline{EC} ?

(1) $5\frac{1}{3}$ (2) 12 (3) 2 (4) 3

10. In the diagram below, which single transformation was used to map triangle A onto triangle B ?



(1) translation (2) dilation
(3) rotation (4) line reflection

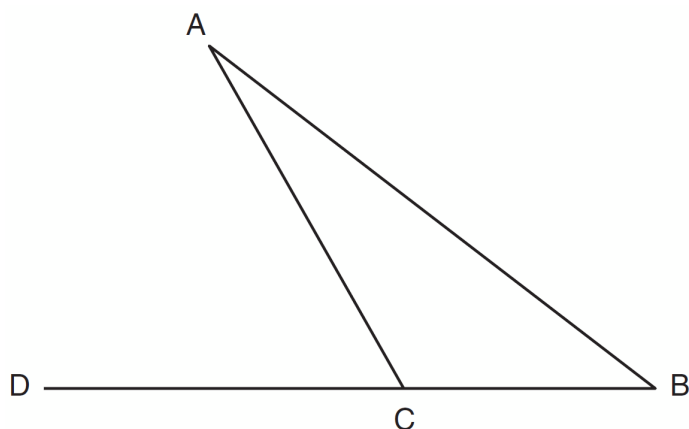
11. Which equation represents a line that is perpendicular to the line represented by $2x - y = 7$

(1) $y = -2x + 6$ (2) $y = -\frac{1}{2}x + 6$
(3) $y = \frac{1}{2}x + 6$ (4) $y = 2x + 6$

12. Which transformation produces a figure similar but *not* congruent to the original figure?

(1) $D_{\frac{1}{2}}$ (2) $r_{y=x}$ (3) $T_{1,3}$ (4) R_{90°

13. In the diagram below of $\triangle ABC$, side \overline{BC} is extended to point D , $m\angle A = x$, $m\angle B = 2x + 15$, and $\angle ACD = 5x + 5$.



What is $m\angle B$?

(1) 5 (2) 20 (3) 25 (4) 55

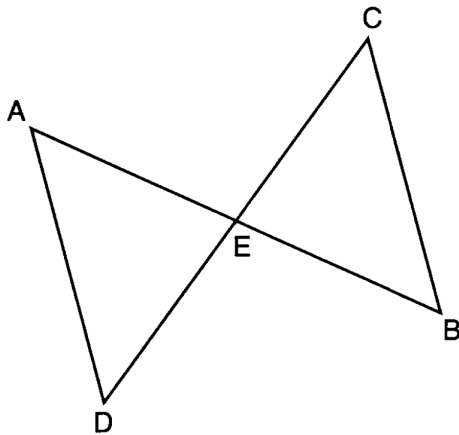
14. The coordinates of any point (x,y) after a reflection in the x -axis can *always* be represented by

(1) $(-x,y)$ (2) $(-x,-y)$ (3) $(x,-y)$ (4) (x,y)

15. Which equation represents a line that is perpendicular to the line whose equation is $3x - 2y = 7$?

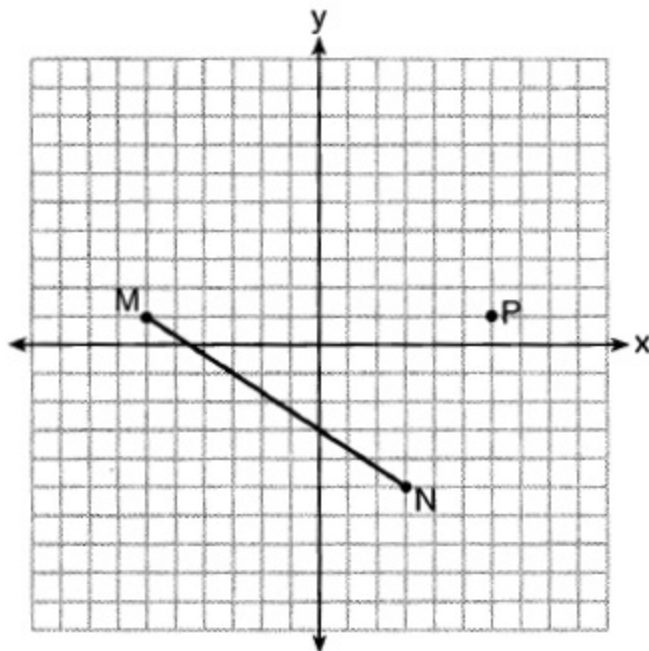
(1) $y = -\frac{2}{3}x + 4$ (2) $y = \frac{2}{3}x - 4$
(3) $y = \frac{3}{2}x - 5$ (4) $y = -\frac{3}{2}x + 5$

16. In the diagram below of $\triangle DAE$ and $\triangle BCE$, \overline{AB} and \overline{CD} intersect at E , such that $\overline{AE} \cong \overline{CE}$ and $\angle BCE \cong \angle DAE$.



Triangle DAE can be proved congruent to triangle BCE by

- (1) SAS (2) HL (3) ASA (4) SSS
17. Given \overline{MN} shown below, with $M(-6, 1)$ and $N(3, -5)$, what is an equation of the line that passes through point $P(6, 1)$ and is parallel to \overline{MN} ?

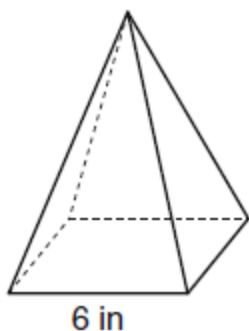


- (1) $y = \frac{3}{2}x - 8$ (2) $y = -\frac{2}{3}x + 5$
 (3) $y = \frac{3}{2}x + 7$ (4) $y = -\frac{2}{3}x - 3$

18. What is an equation of the line that passes through the point $(-2,3)$ and is parallel to the line whose equation is $y = \frac{3}{2}x - 4$?

(1) $y = \frac{3}{2}x + 6$ (2) $y = \frac{-2}{3}x$
(3) $y = \frac{-2}{3}x + \frac{5}{3}$ (4) $y = \frac{3}{2}x$

19. As shown in the diagram below, a regular pyramid has a square base whose side measures 6 inches.



If the altitude of the pyramid measures 12 inches, its volume, in cubic inches, is

(1) 72 (2) 144 (3) 288 (4) 432

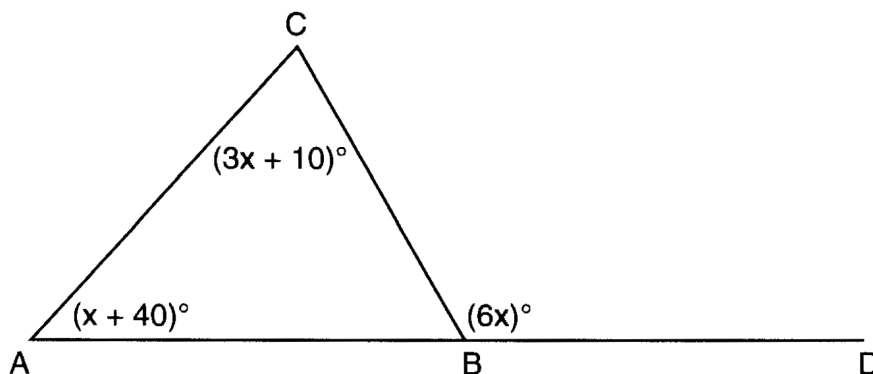
20. Triangle ABC has vertices $A(1,3)$, $B(0,1)$, and $C(4,0)$. Under a translation, A' , the image point of A , is located at $(4,4)$. Under this same translation, point C' is located at

(1) $(5,3)$ (2) $(3,2)$ (3) $(1,-1)$ (4) $(7,1)$

21. An equation of a line perpendicular to the line represented by the equation $y = -\frac{1}{2}x - 5$ and passing through $(6, -4)$ is

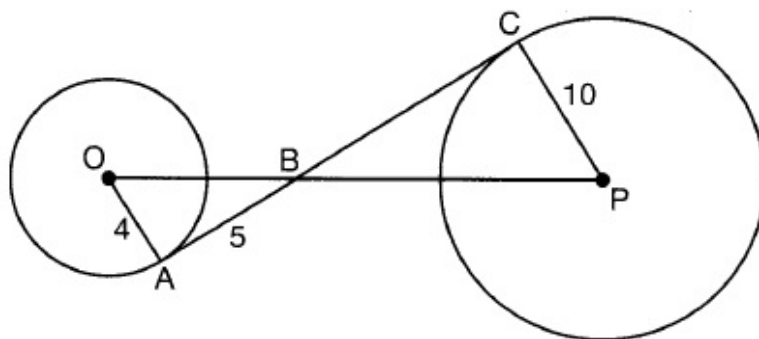
(1) $y = -\frac{1}{2}x - 1$ (2) $y = 2x - 16$
(3) $y = 2x + 14$ (4) $y = -\frac{1}{2}x + 4$

22. In the diagram of $\triangle ABC$ below, \overline{AB} is extended to point D .



If $m\angle CAB = x + 40$, $m\angle ACB = 3x + 10$, and $m\angle CBD = 6x$, what is $m\angle CAB$?

- (1) 65 (2) 25 (3) 53 (4) 13
23. A shipping container is in the shape of a right rectangular prism with a length of 12 feet, a width of 8.5 feet, and a height of 4 feet. The container is completely filled with contents that weigh, on average, 0.25 pound per cubic foot. What is the weight, in pounds, of the contents in the container?
- (1) 1,632 (2) 92 (3) 408 (4) 102
24. In the diagram shown below, \overline{AC} is tangent to circle O at A and to circle P at C , \overline{OP} intersects \overline{AC} at B , $OA = 4$, $AB = 5$, and $PC = 10$.



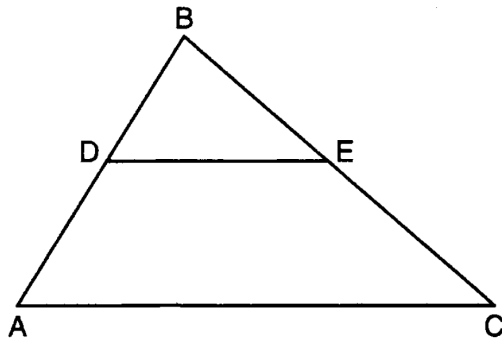
What is the length of \overline{BC} ?

- (1) 6.4 (2) 8 (3) 12.5 (4) 16

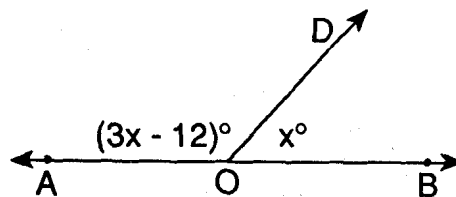
Fill in the solutions. Show work for full credit.

25. What is the slope of a line perpendicular to the line whose equation is $y = -\frac{2}{3}x - 5$?

26. In the diagram below of $\triangle ABC$, \overline{DE} is a midsegment of $\triangle ABC$, $DE = 7$, $AB = 10$, and $BC = 13$. Find the perimeter of $\triangle ABC$.

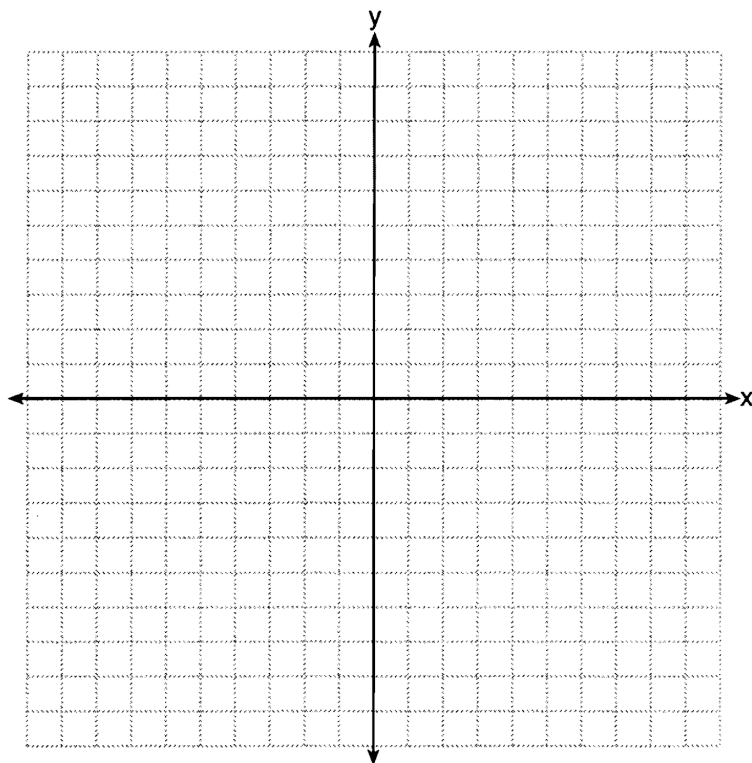


27. In the accompanying diagram, \overleftrightarrow{AOB} is a straight line, $m\angle AOD = 3x - 12$, and $m\angle BOD = x$. What is the value of x ?



28. In a rectangle, the length is twice the width, and the perimeter is 48. Find the area of the rectangle.

29. The coordinates of the vertices of $\triangle ABC$ are $A(1,2)$, $B(-4,3)$, and $C(-3,-5)$. State the coordinates of $\triangle A'B'C'$, the image of $\triangle ABC$ after a rotation of 90° about the origin. [The use of the set of axes below is optional.]



Geometry Final (v.3)

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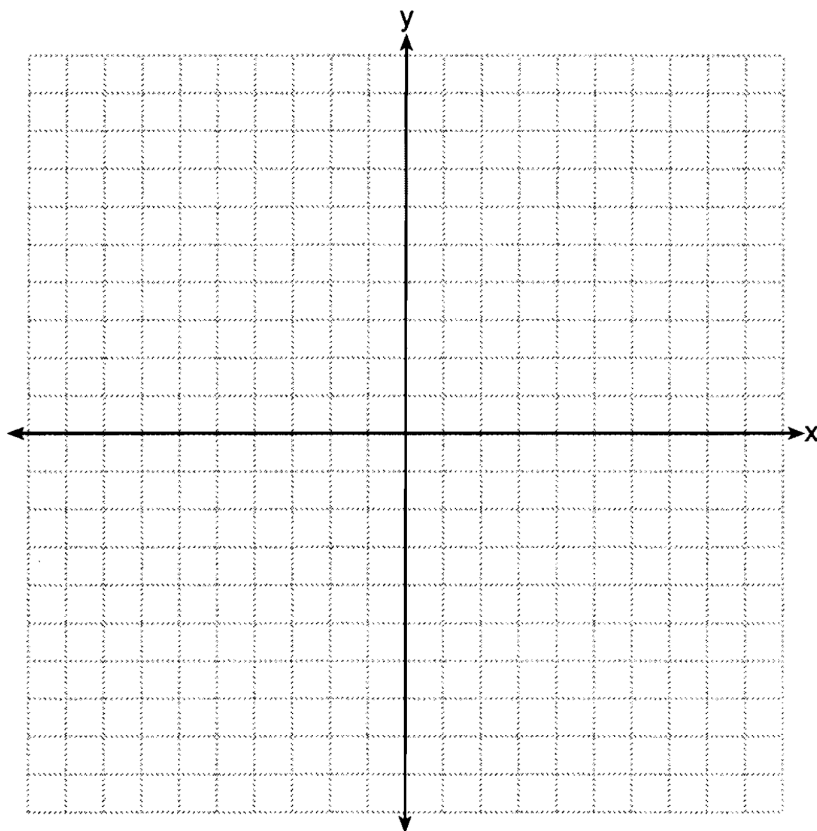
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29. The coordinates of the vertices of $\triangle ABC$ are $A(1,2)$, $B(-4,3)$, and $C(-3,-5)$. State the coordinates of $\triangle A'B'C'$, the image of $\triangle ABC$ after a rotation of 90° about the origin. [The use of the set of axes below is optional.]



Answer Key
Final Exam

1. $\frac{4}{1}$
2. $\frac{1}{1}$
3. $\frac{3}{1}$
4. $\frac{2}{1}$
5. $\frac{1}{1}$
6. $\frac{3}{1}$
7. $\frac{1}{1}$
8. $\frac{3}{1}$
9. $\frac{4}{1}$
10. $\frac{3}{1}$
11. $\frac{2}{1}$
12. $\frac{1}{1}$
13. $\frac{3}{1}$
14. $\frac{3}{1}$
15. $\frac{1}{1}$
16. $\frac{3}{1}$
17. $\frac{2}{1}$
18. $\frac{1}{1}$
19. $\frac{2}{1}$
20. $\frac{4}{1}$
21. $\frac{2}{1}$
22. $\frac{1}{1}$
23. $\frac{4}{1}$
24. $\frac{3}{1}$
25. $\frac{-3}{2}$
26. 37
27. 48
28. 128
29. $A'(-2,1)$, $B'(-3,-4)$, and $C'(5,-3)$