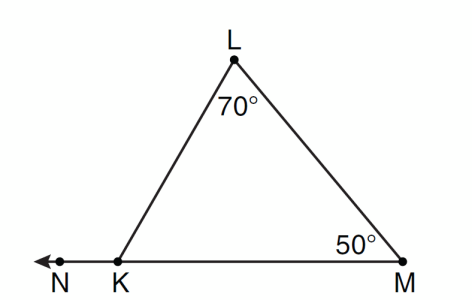
1. What is the image of the point (-5,2) under the translation $T_{3,-4}$?

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

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

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

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



   What is the measure of $\angle LKN$?

   (1) 180° (2) 300° (3) 60° (4) 120°

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

   (1) (3,5) (2) (5,–3) (3) (–3,5) (4) (3,–5)

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 $\Delta ABC \cong \Delta JKL \cong \Delta RST$,then $\overline{BC}$ must be congruent to

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

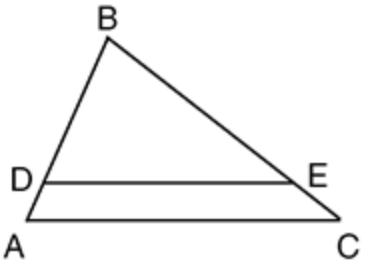
7. The area of a square is represented by $36x^2$. Which expression represents the length of each side of the square?

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

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

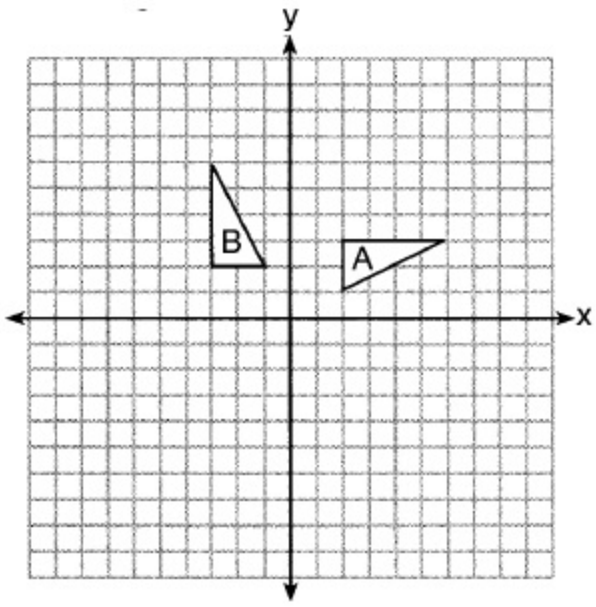
9. In the accompanying diagram, $\overline{AC} \parallel \overline{DE}$, $AB = 10$, $BC = 15$, and $BD = 8$.



What is the length of $\overline{EC}$?

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

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



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

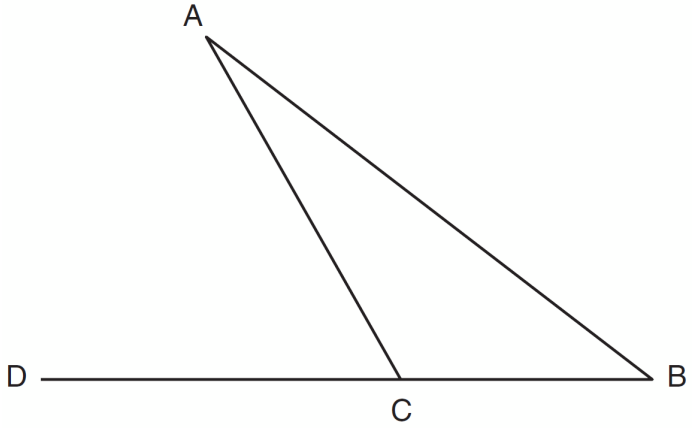
11. Which equation represents a line that is perpendicular to the line represented by $2x - y = 7$

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

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

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

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



What is m∠*B*?

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

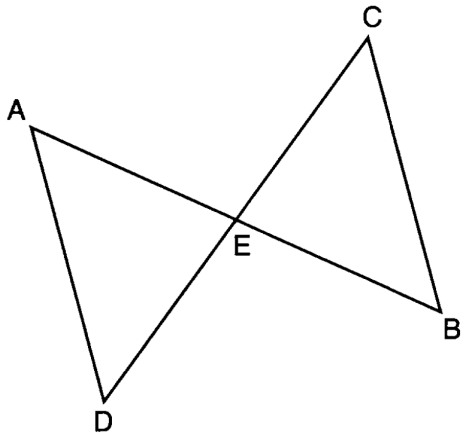
14. The coordinates of any point (*x,y*) after a reflection in the *x*–axis can *always* be represented by

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

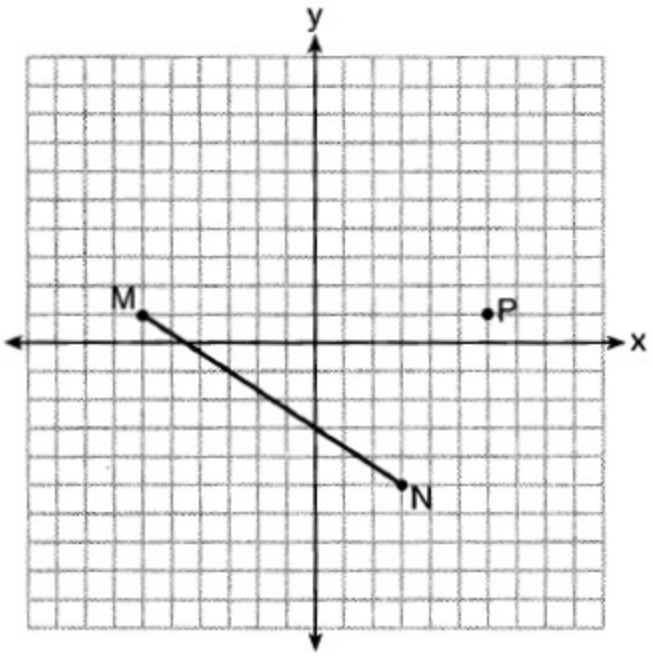
16. In the diagram below of ΔDAE and ΔBCE, $\overline{AB}$ and $\overline{CD}$ intersect at *E,* such that $\overline{AE} \cong \overline{CE}$ and $\angle BCE \cong \angle DAE$.



Triangle *DAE* can be proved congruent to triangle *BCE* by

(1) SSS (2) HL (3) SAS (4) ASA

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 $\overline{MN}$?

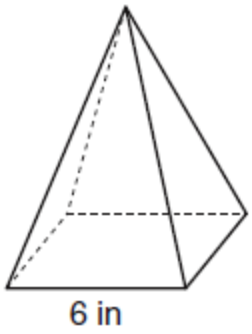


(1) $y = -\frac{2}{3}x + 5$ (2) $y = \frac{3}{2}x - 8$
(3) $y = \frac{3}{2}x + 7$ (4) $y = -\frac{2}{3}x - 3$

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

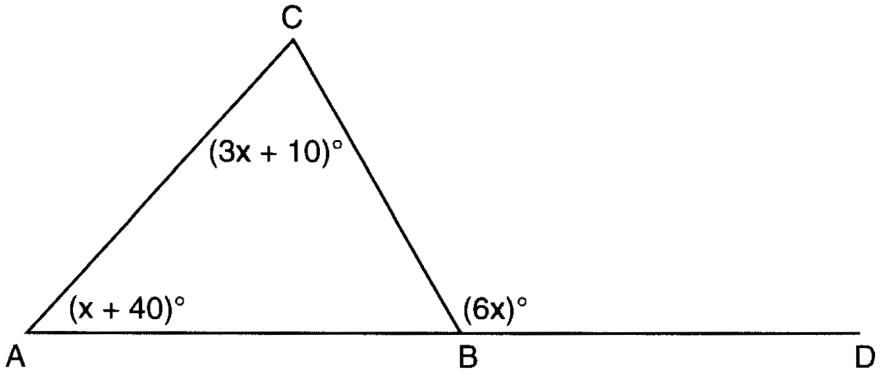
20. Triangle *ABC* has vertices *A*(1,3), *B*(0,1), and *C*(4,0). Under a translation, *A′*, the image point of *A*, is located at (4,4). Under this same translation, point *C′* is located at

(1) (5,3) (2) (7,1) (3) (1,–1) (4) (3,2)

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

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



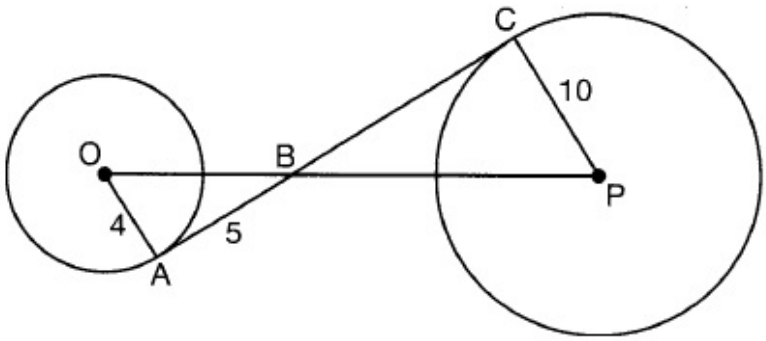
If $m\angle CAB = x + 40$, $m\angle ACB = 3x + 10$, and $m\angle CBD = 6x$, what is $m\angle CAB$?

(1) 13 (2) 25 (3) 53 (4) 65

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) 102 (2) 92 (3) 408 (4) 1,632

24. In the diagram shown below, $\overline{AC}$ is tangent to circle O at A and to circle Pat C, $\overline{OP}$ intersects $\overline{AC}$ at B, $OA = 4$, $AB = 5$, and $PC = 10$.



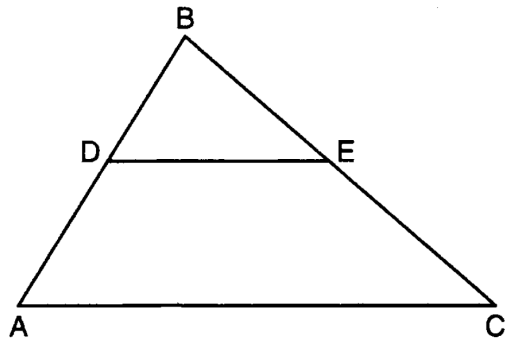
What is the length of $\overline{BC}$?

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

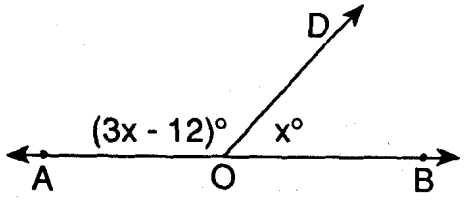
Fill in the solutions. Show work for full credit.

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 ΔABC, $\overline{DE}$ is a midsegment of ΔABC, $DE = 7$, $AB = 10$, and $BC = 13$. Find the perimeter of ΔABC.

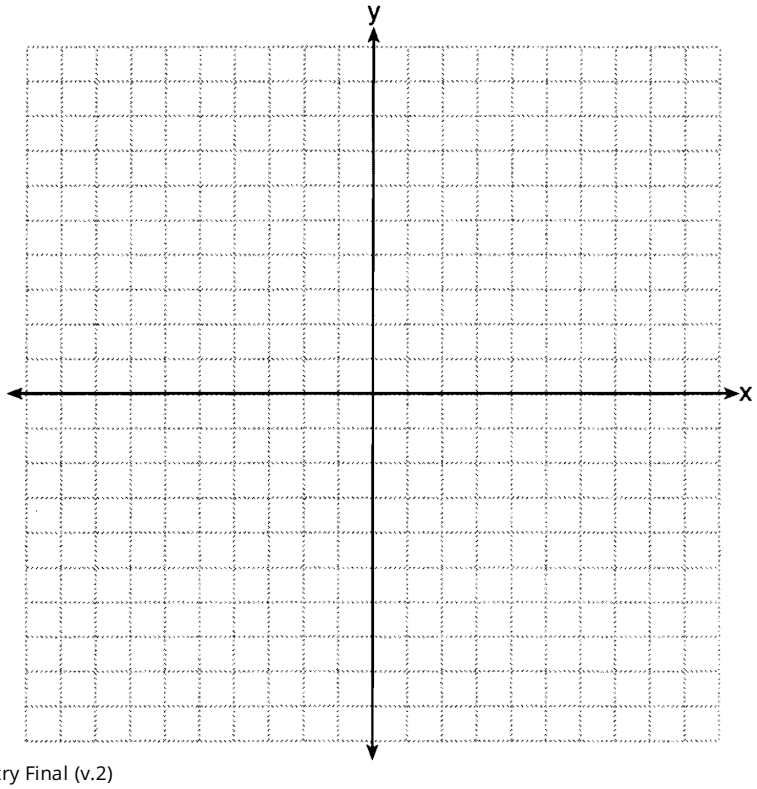


27. In the accompanying diagram, $\overleftarrow{AOB}$ is a straight line, m$\angle AOD = 3x - 12$, *and m* $\angle BOD = x$. *What is the value of x?*



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



Geometry Final (v.2)

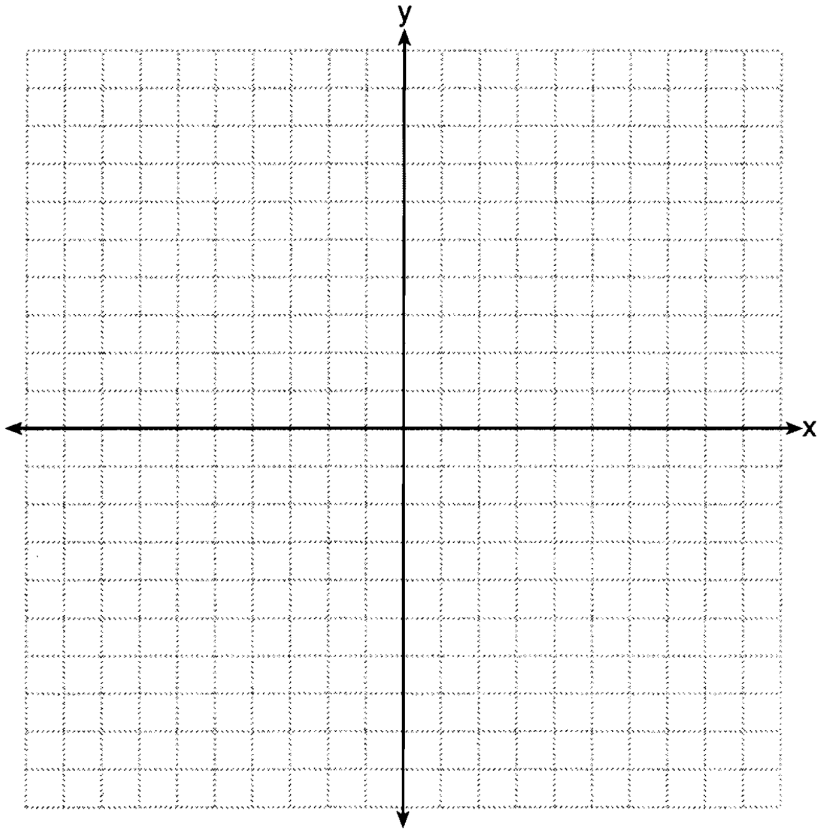
GradeCam ID:

1.	①	②	③	④	9.	①	②	③	④	17.	①	②	③	④
2.	①	②	③	④	10.	①	②	③	④	18.	①	②	③	④
3.	①	②	③	④	11.	①	②	③	④	19.	①	②	③	④
4.	①	②	③	④	12.	①	②	③	④	20.	①	②	③	④
5.	①	②	③	④	13.	①	②	③	④	21.	①	②	③	④
6.	①	②	③	④	14.	①	②	③	④	22.	①	②	③	④
7.	①	②	③	④	15.	①	②	③	④	23.	①	②	③	④
8.	①	②	③	④	16.	①	②	③	④	24.	①	②	③	④

0	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9

Form Identifier -- Do not mark

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



Answer Key

Final Exam

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