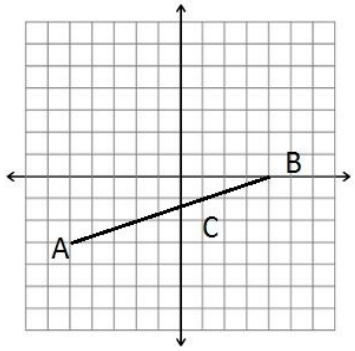
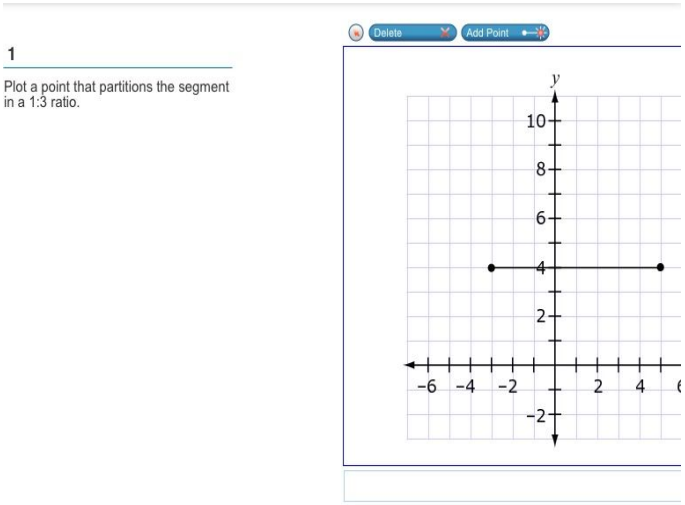
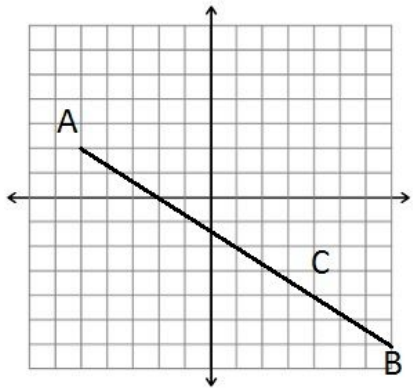
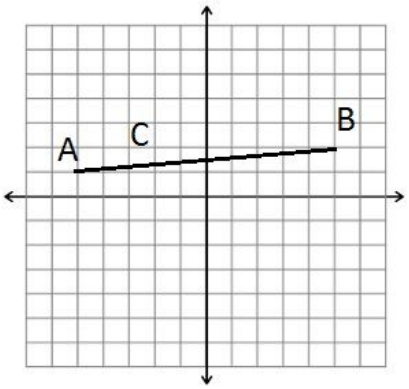
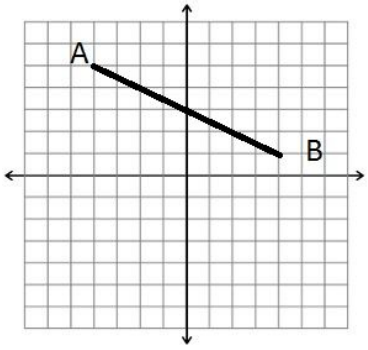
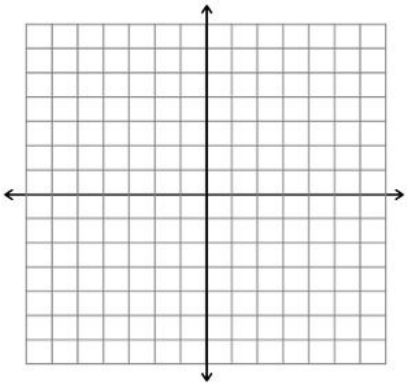
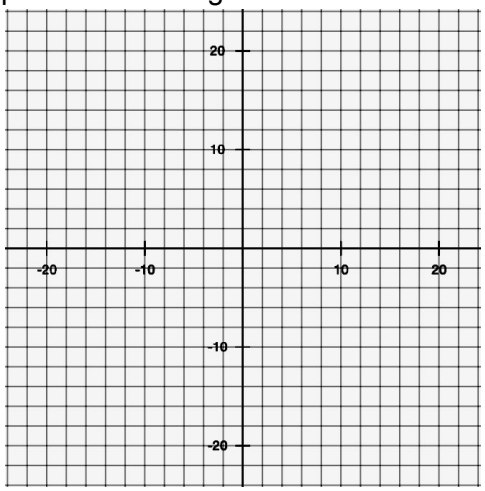
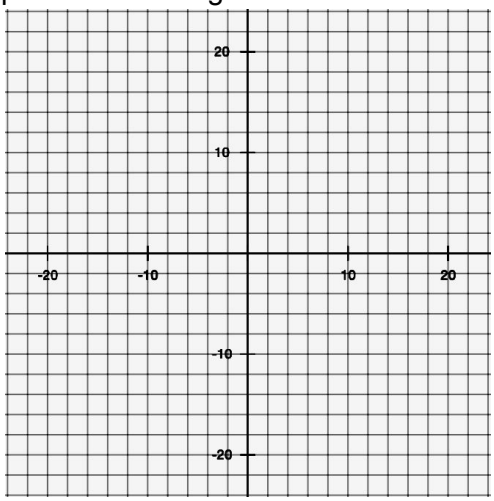
A 10.4 Segment Ratios	Name
1. For the following image, the coordinates of A and B are: A (-5,3) and B(4,0). The ratio of AC:CB is 2:1 Ratio. Find the point C that is ⅔ the way from A to B. What are the coordinates of point C? C(,) 	2. Find the point that the segment into a 1:3 ratio or ¼ of the whole length of the segment. 
3. For the following image, the coordinates of A and B are: A (-5,2) and B(7,-6). The ratio of AC:CB is 3:1. Find the point C that is 3/4 the way from A to B. What are the coordinates of point C? C(,) 	4. For the following image, the coordinates of A and B are: A (-5,1) and B(5,2). The ratio of AC:CB is 1:4 Ratio. Find the point C. C(,) 
5. For the following image, the coordinates of A and B are: A (-4,5) and B(4,1). The ratio of AC:CB is 3:1 Ratio. What are the coordinates of point C? C(,) 	6. Find the coordinates of the point that lies along the directed segment from M(-4,7) to N(12,-1) and partitions the segment in the ratio of 1:7. 

7. Find the coordinates of point P that lies along the directed line segment from A(-21,-10) to B(3,4) and partitions the segment in the ratio of 3 to 1.



8. Find the coordinates of point P that lies along the directed line segment from A(-18,11) to B(12,1) and partitions the segment in the ratio of 2 to 3.

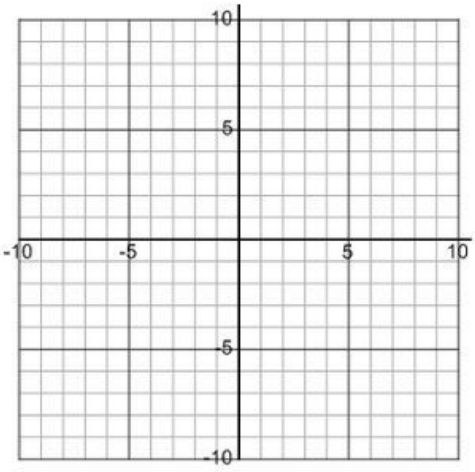


9. Find the EXACT reduced solution of the following.

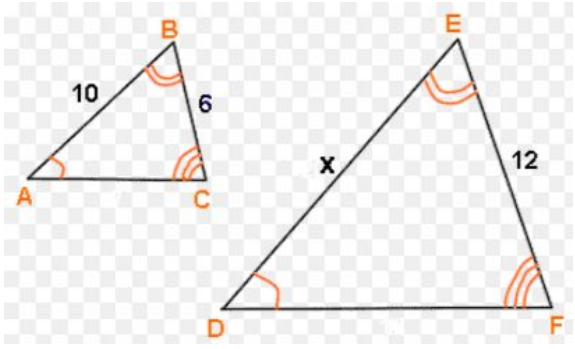
$2x^2 = 16x - 82$

10. When is f(x) < g(x)?

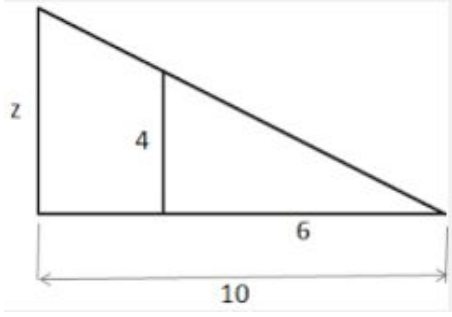
$f(x) = (x+6)^2 - 4$ $\quad$ $g(x) = -1|x-6| + 8$



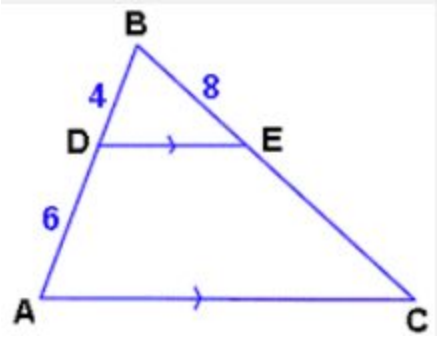
11. Decide if the following are similar by SSS, SAS, or AA. If so find the scale factor and the lengths of the missing side.



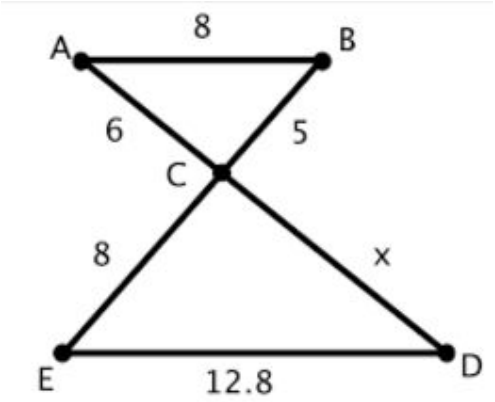
12. The lines are parallel in the triangle.
Decide if the following are similar by SSS, SAS, or AA. If so find the scale factor and the lengths of the missing side.



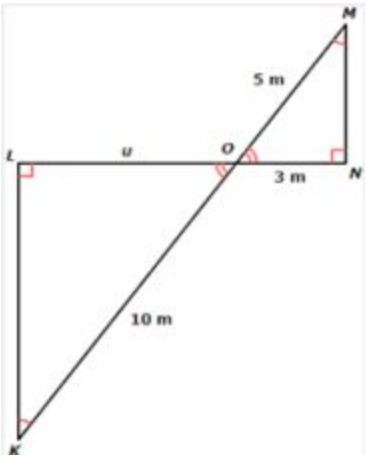
13. Decide if the following are similar by SSS, SAS, or AA. If so find the scale factor and the lengths of BC.



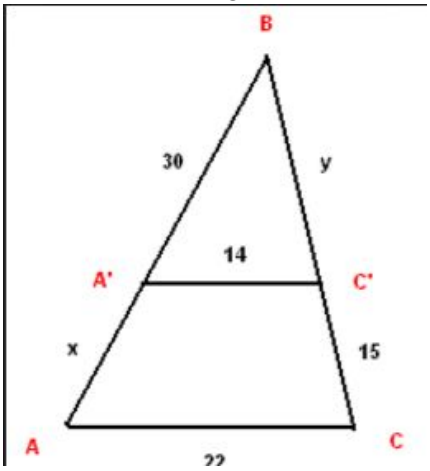
14. AB is parallel to ED. Decide if the following are similar by SSS, SAS, or AA. If so find the scale factor and the lengths of the missing side.



15. Decide if the following are similar by SSS, SAS, or AA. If so find the scale factor and the lengths of the missing side.



16. A'C' is parallel to AC. Decide if the following are similar by SSS, SAS, or AA. If so find the scale factor and the length of x.



17. Graph the following system of inequalities.

$f(x) >= 2(x-4)(x-6)$

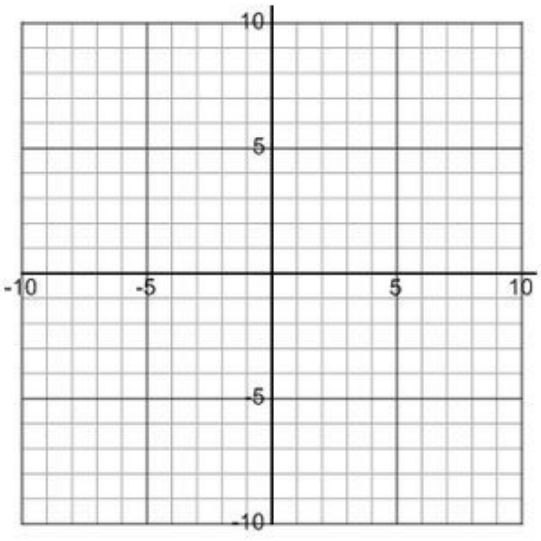
x-intercepts :(___ , _____) (_____ , _____)

Vertex : (_____ , _____)

$g(x) < x^2 - 10x + 24$

Vertex : (_____ , _____)

x-intercepts :(___ , _____) (_____ , _____)



18. Simplify using the rules of Exponents:

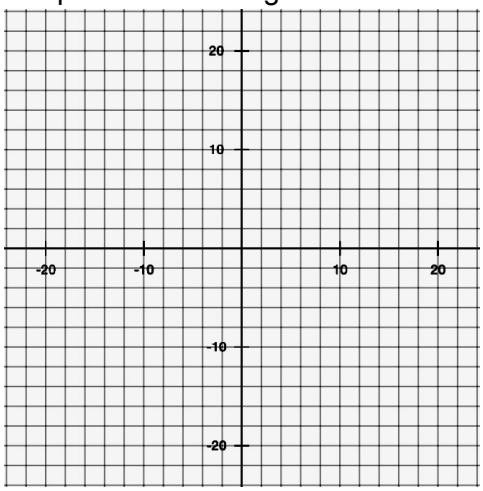
a. $2x^{\frac{2}{3}} \cdot 3x^{\frac{1}{4}}$

b. $\left(-125x^{-6}y^{3}\right)^{\frac{2}{3}}$

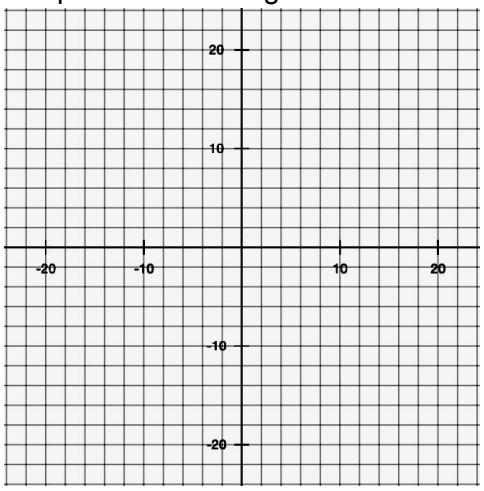
c. $\frac{5x^{\frac{4}{5}}}{10x^{\frac{4}{15}}}$

d. Write in radical form: $4x^{\frac{1}{2}}$

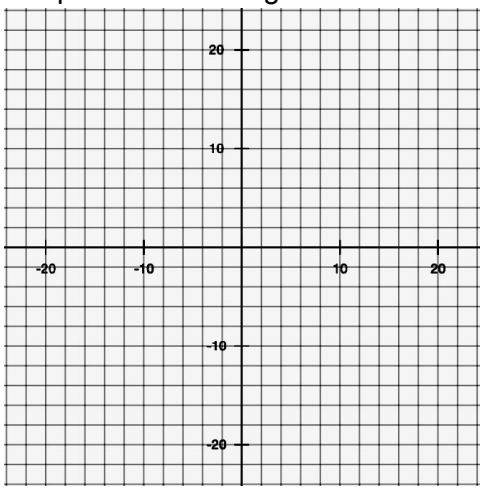
19. Find the coordinates of point P that lies along the directed line segment from A(-12,21) to B(18,-6) and partitions the segment in the ratio of 1 to 5.



20. Find the coordinates of point P that lies along the directed line segment from A(-15,-10) to B(20,5) and partitions the segment in the ratio of 4 to 1.



21. Find the coordinates of point P that lies along the directed line segment from A(-4,1) to B(11,7) and partitions the segment in the ratio of 2 to 1.



22. Simplify: (5 - 2i)(3 + 6i) - 7i(4 + 1i)

23. Factor then find the solutions:

$3x^2 - 22x + 7 = 0$

Factors:

(x_____)(x_____)

Solutions:

x = _____ & x = _____