GSE Geometry Equations of Circles Name: _____ Block: __

Find the center and radius of the circle.

1. $x^2 + y^2 = 36$

2. $(x-2)^2 + (y-7)^2 = 49$

3. $(x+1)^2 + (y+6)^2 = 16$

4. $(x+3)^2 + (y-11)^2 = 12$

Write the standard equation of each circle.

5. $center\ (0,0): r = 7$

6. $center\ (4,3): r = 8$

7. $center\ (5,3): r = 2$

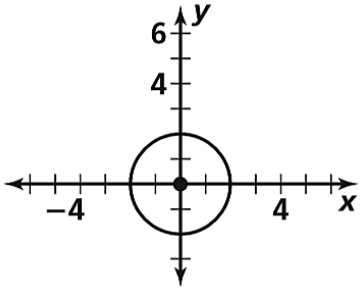
8. $center\ (-5,4): r = \frac{1}{2}$

9. $center\ (-2,-5): r = \sqrt{2}$

10. $center\ (-1,6): r = \sqrt{5}$

Write an equation for each circle.

11.



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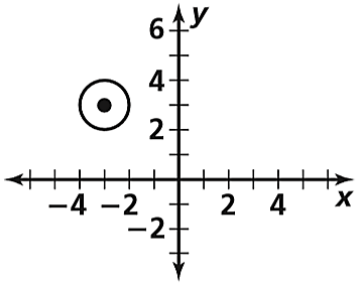

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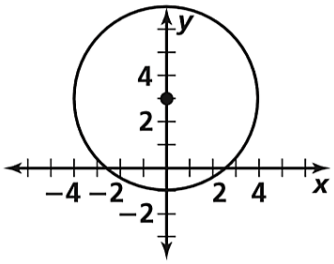

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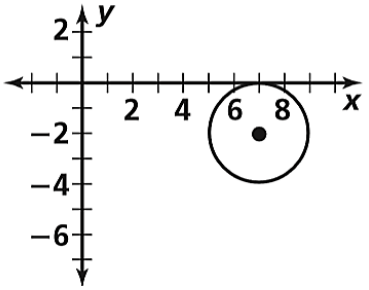

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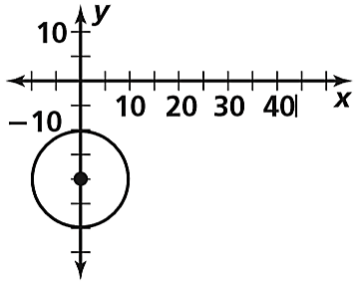

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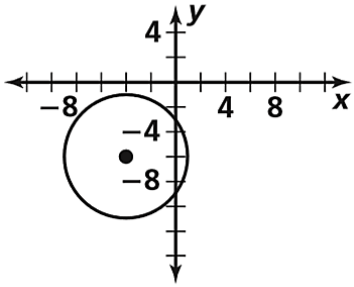
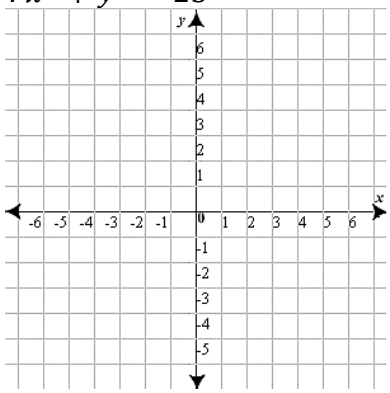
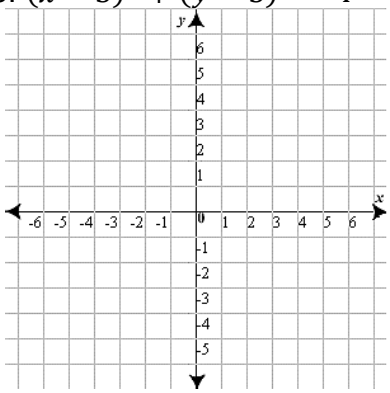


Graph each circle.

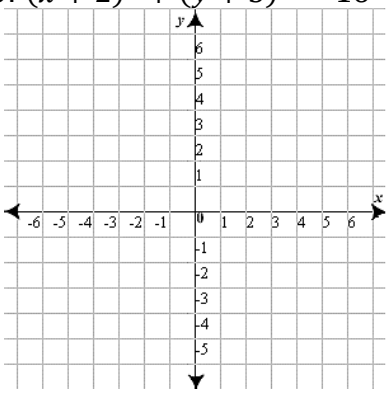
17. $x^2 + y^2 = 25$



18. $(x-3)^2 + (y-5)^2 = 4$



19. $(x+2)^2 + (y+3)^2 = 16$



Write an equation for each circle with the given center that passes through the given point.

20. $center\ (0,0): point\ (3,4)$

21. $center\ (5,9): point\ (2,9)$

Rewrite the equation from general form to standard form.

22. $(x+1)^2+(y-2)^2=9$

23. $(x-2)^2+(y-3)^2=4$

Find in each case whether the given point lies inside, outside or on the given circle.

24. (0, −9) $x^2+y^2=64$

25. (4, 7) $x^2+y^2-2x-6y-26=0$

26. (7, −3) $x^2+y^2+10x-4y=140$

27. (−4, 1) $(x+1)^2+(y+4)^2=30$

28. (4,1) $(x-2)^2+(y+6)^2=29$

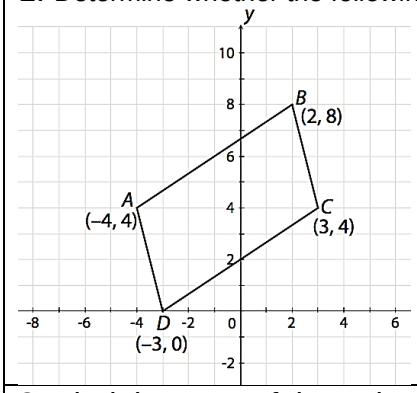
29. Determine whether each point is on, inside, or outside the circle $x^2+y^2=34$.

A. (-6,0)

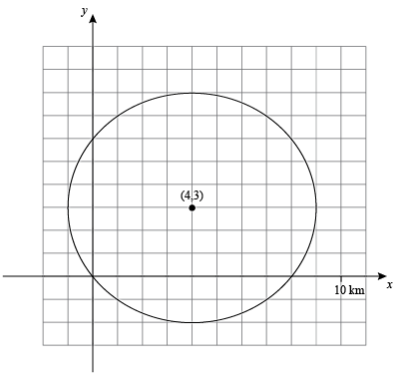
B. (-3,-5)

C. (2,-6)

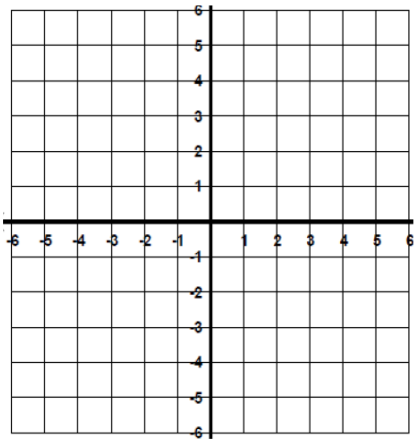
1. Determine whether the following is a parallelogram.



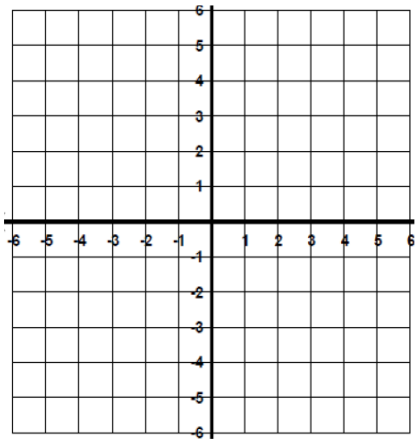
2. Find the area and circumference of the circle.



3. Find the area of the polygon with the given vertices. E(3, 1), F(3, −2), G(−2, −2)

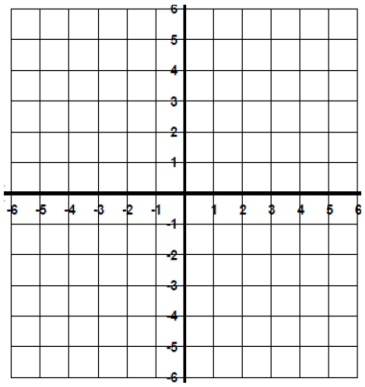


4. Find the perimeter of the polygon with the given vertices. G(2, 4), H(2, −3), J(−2, −3), K(−2, 4)

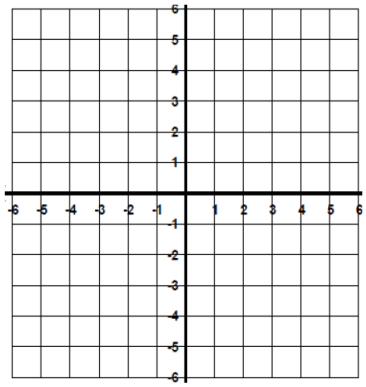


Graph the linear equations and determine which equations are parallel and which are perpendicular.

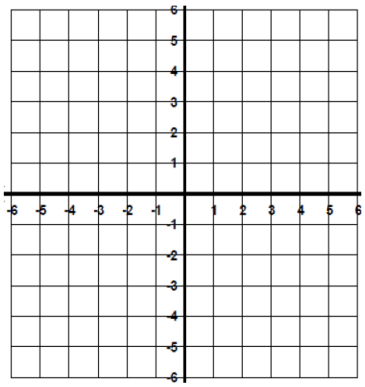
A. $y = \frac{2}{3}x + 1$



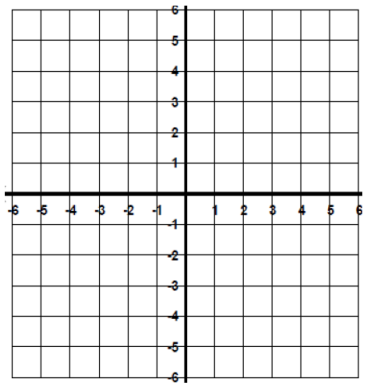
B. $y = -\frac{3}{2}x + 6$



C. $y = -2x - 1$



D. $y = -2x - 3$



Write the slope intercept form of the equation of the line described.

1. $through: (2,2), parallel\ to\ y = x + 4$	2. $through: (4,3), parallel\ to\ y = 3x + 2$
3. $through: (2, -1), parallel\ to\ y = -\frac{2}{5}x + 3$	4. $through: (1, -5), perpendicular\ to\ y = \frac{1}{8}x + 2$
5. $through: (4, -1), perpendicular\ to\ y = x + 2$	6. $through: (3,4), perpendicular\ to\ y = -2x - 4$
7. Determine which of the lines, if any, are parallel. Explain. Lina a: $y = -x + 4$ Line b: $y = x - 7$ Line c: $5y = -5x + 10$	8. Determine which of the lines, if any, are perpendicular. Explain. Lina a: $y = -4x + 1$ Line b: $y = -\frac{1}{4}x - 1$ Line c: $y = \frac{1}{4}x + 3$

Partitioning Segments

Coordinates of point which partitions a directed line segment AB at the ratio of $a:b$ from $A(x_1, y_1)$ to $B(x_2, y_2)$ $(x, y) = \left(\frac{bx_1 + ax_2}{b+a}, \frac{by_1 + ay_2}{b+a}\right)$ **OR** $(x, y) = \left(x_1 + \frac{a}{a+b}(x_2 - x_1), y_1 + \frac{a}{a+b}(y_2 - y_1)\right)$	1. Find the coordinates of the point P that lies along the directed segment from M (-5, -2) to N (-5, 8) and partitions the segment in the ratio of 4:6.
2. Find the coordinates of the point R that lies along the directed segment from J (10, -5) to K (-2, -3) and partitions the segment in the ratio of 2:7.	3. Find the coordinates of point Q that is $\frac{2}{3}$ of the way along the directed segment from R (-7, -2) to S (2, 4).

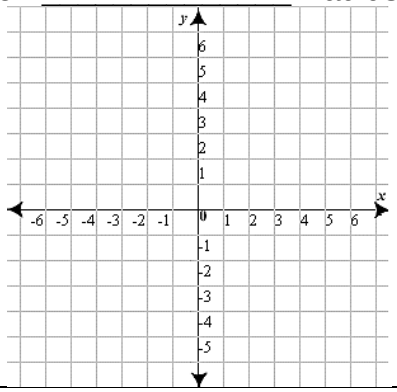
Coordinate Geometry Review

1. What is the distance between the points (-6, 5) and (1,1)?	2. What is the midpoint between (-2, 5) and (4, 8)?
3. One endpoint of a segment is (20, 20). The midpoint of the segment is (-2, 4). What is the second endpoint of this segment?	4. What is the point that is 2:1 the distance from the endpoint (-3, 8) of the segment with endpoints (-3, 8) and (9, -7)?
5. What is the equation of a circle with center (-2,5) and radius 4?	6. What is the equation of the circle that has a center (0,2) and passes through (2,-3)?
7. Determine whether the points are inside, outside, or on the given circle. $(x-2)^2 + (y+1)^2 = 36$ A. (2,5) B. (0,-4) C. (-4,2)	8. Put the equation of the circle in general form: $(x-2)^2 + (y+2)^2 = 36$

Graph the following circles, State the center and radius.

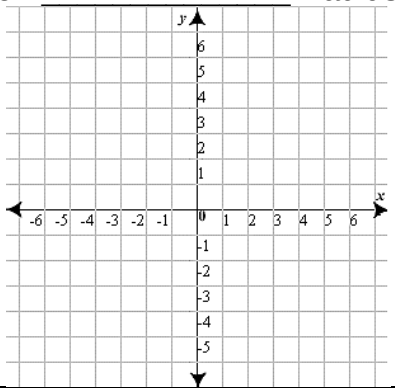
9. $(x+1)^2+(y-2)^2=4$

Center: _____ Radius: ___



10. $(x-3)^2+y^2=16$

Center: _____ Radius: ___



Write the equation of the circle given the graph.

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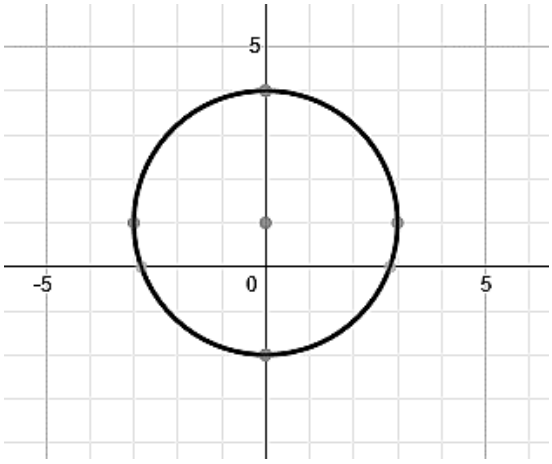

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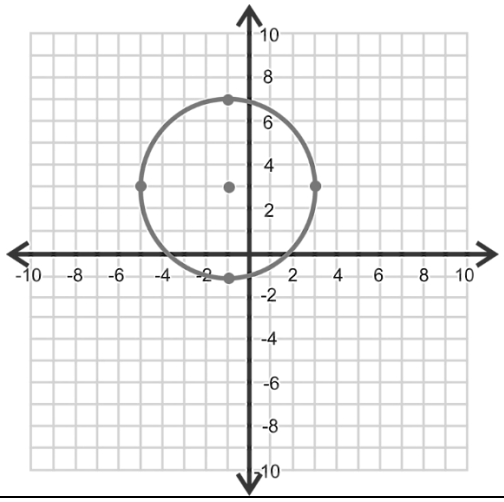
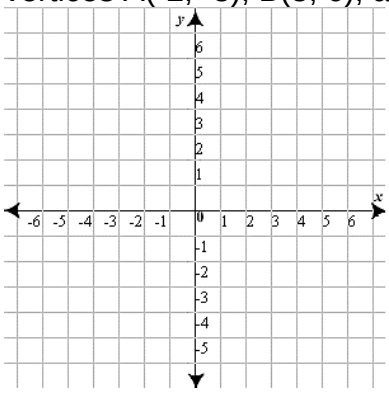


13. Write an equation that represents a line that is parallel to the line $y=\frac{4}{3}x+3$ and passes through the point (3, 5).

14. Write an equation that represents a line that is perpendicular to the line $y=2x+3$ and passes through the point (8, 0).

15. What is the perimeter of triangle ABC with vertices A(-2, -3), B(3, 6), and C (3, -3)?



16. What is the area of the rectangle ABCD with vertices A(-5, 2), B(-4, 5), C(2,3), and D(1, 0)?