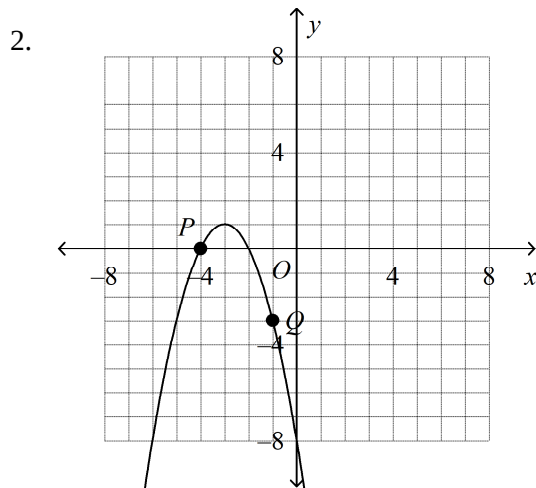
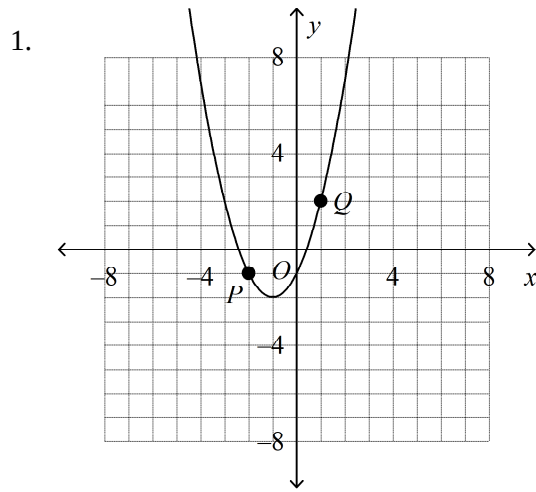


Pre-Calculus Summer Practice: Complete these problems to the best of your ability. Video tutorial links are provided. Test will be week two of semester. These are pre-requisite skills.
Pre-Calculus Summer Assignment

Identify the vertex and the axis of symmetry of the parabola. Identify points corresponding to P and Q .



Find a quadratic model for the set of values.

3.

x	-2	0	4
$f(x)$	1	-3	85

a. $y = 3x^2 + 6x - 4$

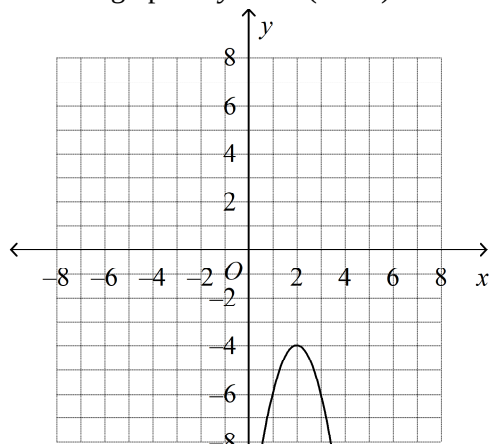
b. $y = -4x^2 - 6x + 3$

c. $y = 4x^2 + 6x - 3$

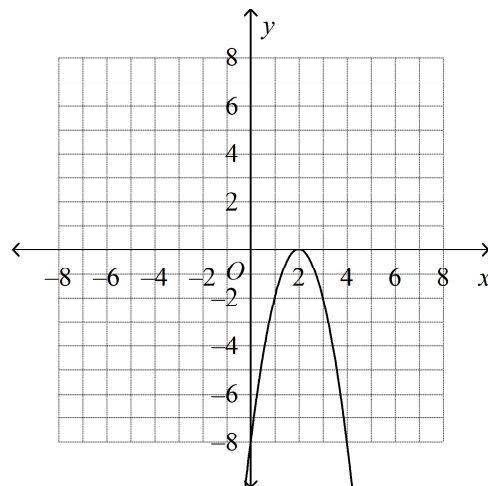
d. $y = 6x^2 + 4x - 3$

_____ 4. Which is the graph of $y = -2(x - 2)^2 - 4$?

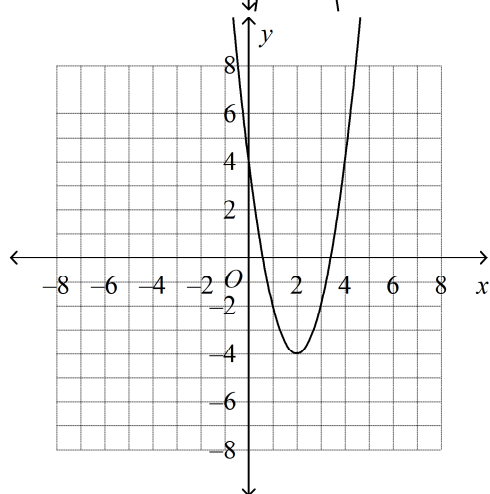
a.



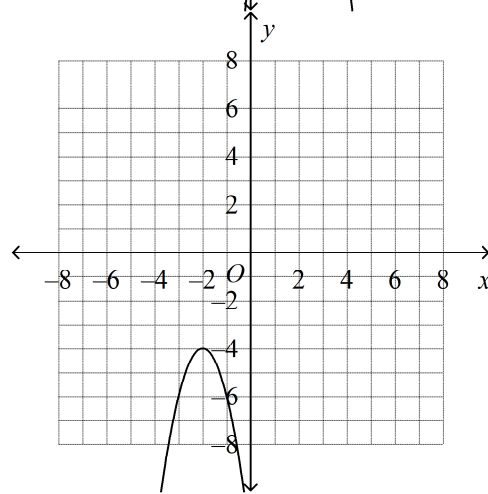
c.



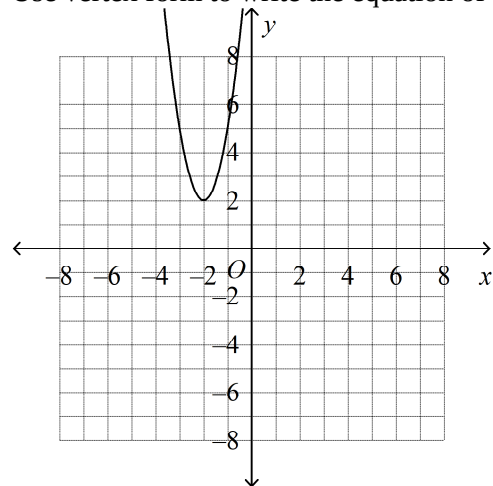
b.



d.



5. Use vertex form to write the equation of the parabola.



6. Write $y = 2x^2 + 12x + 14$ in vertex form.

Factor the expression.

7. $8x^2 + 12x - 16$

8. $x^2 + 14x + 48$

Name: _____

ID: A

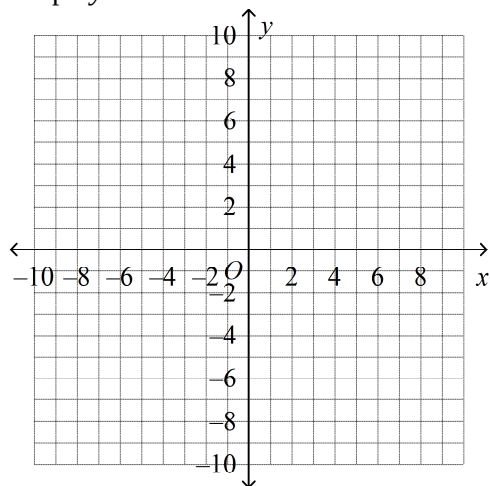
9. $3x^2 + 26x + 35$

10. $5x^2 - 22x - 15$

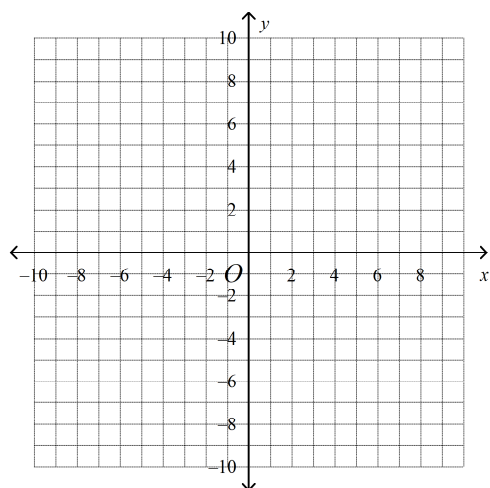
11. Solve by factoring.

$$4x^2 + 28x - 32 = 0$$

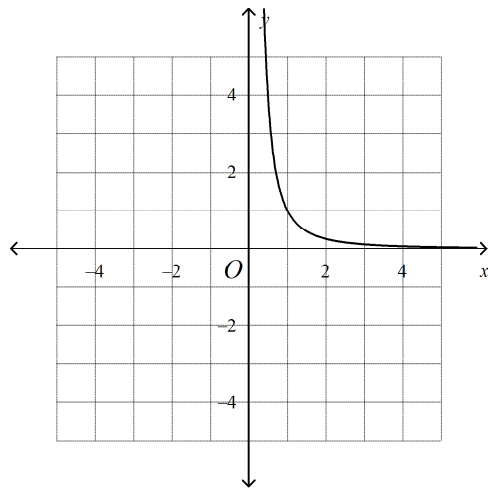
12. Graph $y = 3x^2 - 12x + 13$. What is the minimum value of the function?



13. Graph $y = (x - 7)^2 + 5$.

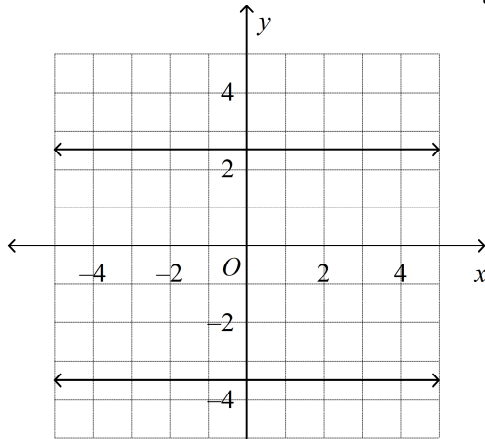


14. Find the domain and range of the relation and determine whether it is a function.

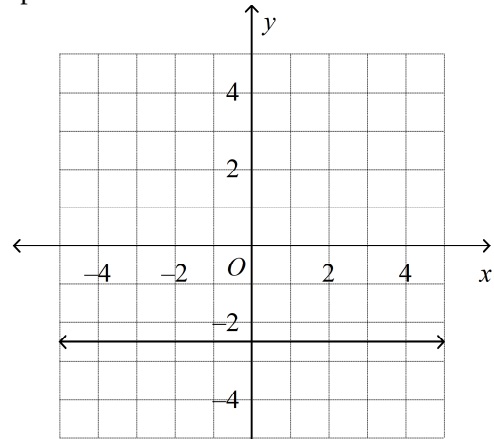


- ____ 15. Use the vertical-line test to determine which graph represents a function.

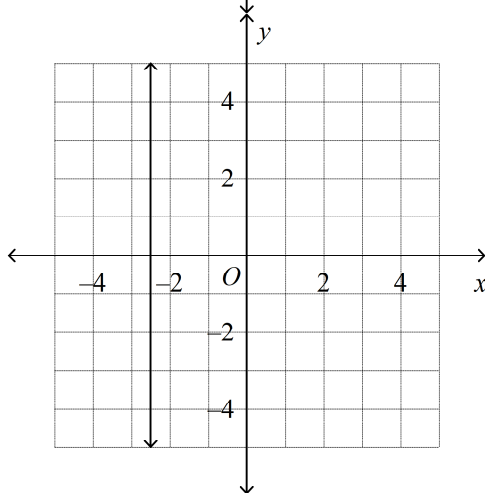
a.



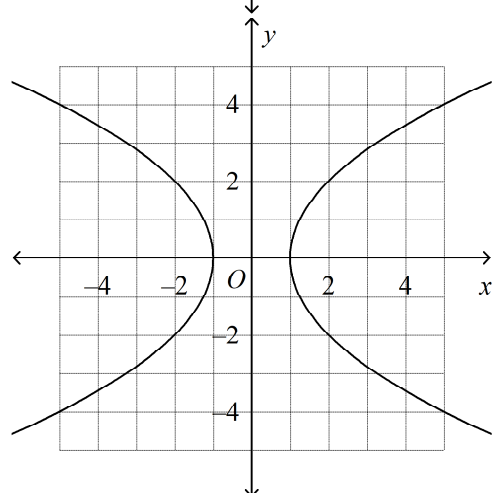
c.



b.



d.



Graph the absolute value equation.

16. $y = -|2x + 3|$
17. Graph the equation of $y = |x|$ translated 4 units up.

18. The equation $y = -2x - 1$ describes a function that is translated from a parent function.
- Write the equation of the parent function. Then find the number of units and the direction of translation.
 - Sketch the graphs of the two functions.
19. Write the equation that is the translation of $y = |x|$ left 1 unit and up 2 units.
20. Identify the vertex and the y -intercept of the graph of the function $y = -3(x + 2)^2 + 5$.
21. Write the expression $(x + 6)(x - 4)$ as a polynomial in standard form.
22. Find the zeros of $y = x(x - 3)(x - 2)$. Then graph the equation.
23. Write a polynomial function in standard form with zeros at 5, -4 , and 1.
24. Find the zeros of $f(x) = (x + 3)^2(x - 5)^6$ and state the multiplicity.

Divide using synthetic division.

25. $(x^4 + 15x^3 - 77x^2 + 13x - 36) \div (x - 4)$
26. $(x^3 + 4 - 11x + 3x^2) \div (6 + x)$

Solve the equation by graphing.

27. $x^2 + 7x + 19 = 0$
28. Graph $y = -4x^2 - 2$ and its inverse.

Graph the exponential function.

29. $y = 4^x$

Graph the logarithmic equation.

30. $y = \log(x + 1) - 7$
31. $y = \log_5(x - 2)$

Expand the logarithmic expression.

32. $\log_7 \frac{n}{2}$

33. $\log_b \sqrt{\frac{57}{74}}$

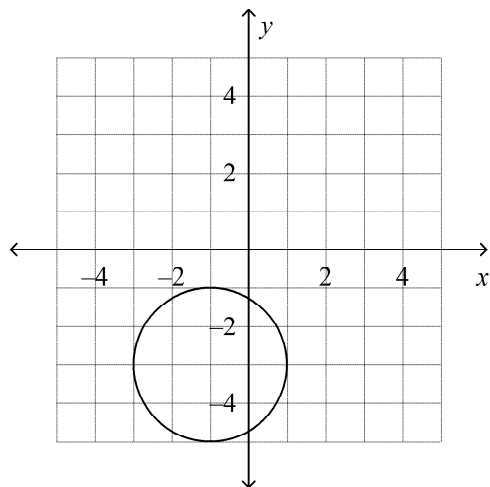
34. Describe the vertical asymptote(s) and hole(s) for the graph of $y = \frac{(x - 5)(x - 2)}{(x - 2)(x + 4)}$.

35. Find the horizontal asymptote of the graph of $y = \frac{6x^2 + 5x + 9}{7x^2 - x + 9}$.

36. Write an equation of a circle with center $(-5, -8)$ and radius 2.

37. Write an equation for the translation of $x^2 + y^2 = 25$, 2 units right and 4 units down.

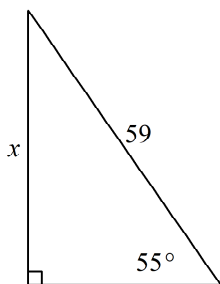
38. Write an equation in standard form for the circle.



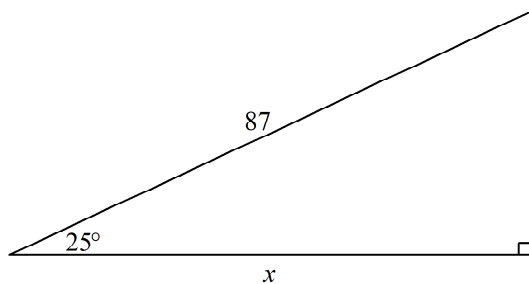
39. Graph $(x + 4)^2 + (y - 7)^2 = 49$.

Find the length x . Round to the nearest tenth.

40.

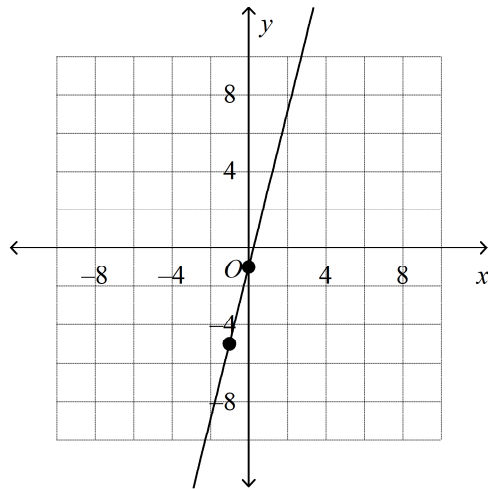


41.



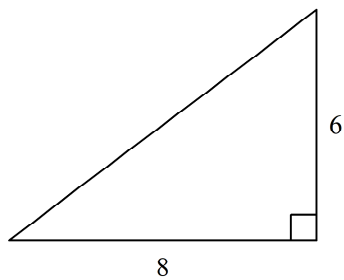
Find the slope of the line through the pair of points.

42.

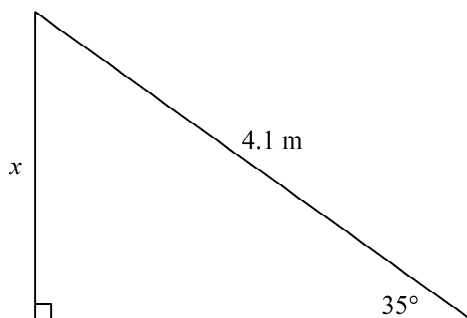
43. $(-\frac{1}{3}, 0)$ and $(-\frac{1}{2}, -\frac{1}{2})$

Find the length of the missing side. The triangle is not drawn to scale.

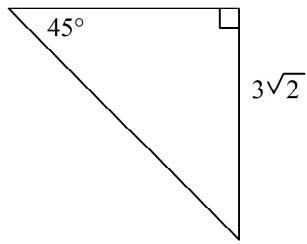
44.



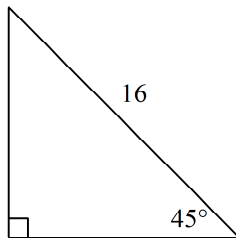
45. A slide 4.1 meters long makes an angle of 35° with the ground. To the nearest tenth of a meter, how far above the ground is the top of the slide?



46. Find the length of the hypotenuse.

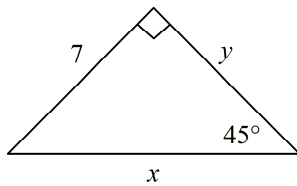


47. Find the length of the leg. If your answer is not an integer, leave it in simplest radical form.



Not drawn to scale

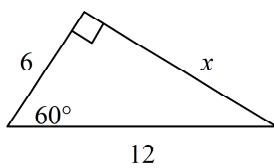
48. Find the lengths of the missing sides in the triangle. Write your answers as integers or as decimals rounded to the nearest tenth.



Not drawn to scale

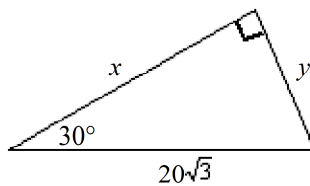
Find the value of the variable(s). If your answer is not an integer, leave it in simplest radical form.

- 49.



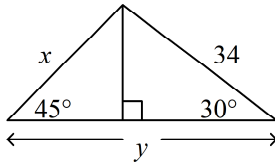
Not drawn to scale

- 50.



Not drawn to scale

51. Find the value of x and y rounded to the nearest tenth.



Simplify the expression.

52. $-\frac{1}{8} - \frac{2}{7}$

53. $\frac{6}{12} - \frac{3}{12} =$

54. $\frac{3}{4} + \frac{5}{10} =$

55. $6\frac{1}{3} + 5\frac{5}{6} =$

56. $8\frac{3}{4} - 4\frac{1}{4} =$

57. $\frac{3}{6} \times \frac{7}{10} =$

58. $1\frac{1}{3} \times 1\frac{5}{9} =$

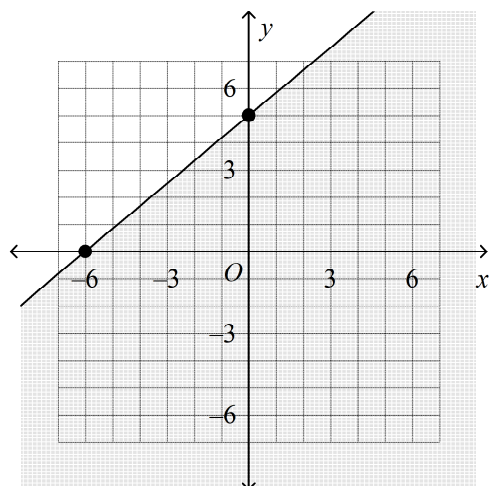
59. $1\frac{1}{3} \div 2\frac{1}{2} =$

Graph the inequality.

60. $4x - 2y < -3$

61. $-3x + y \leq 5$

62. Write an inequality for the graph.



Find the domain of the function.

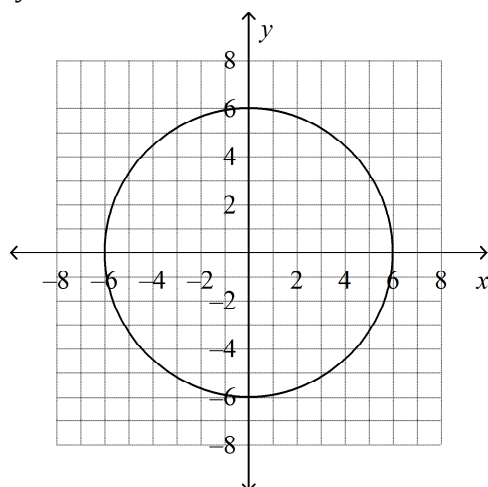
63. $h(x) = \frac{4x}{x(x^2 - 25)}$

64. $f(x) = \sqrt{4x - 6}$

Graph the equation. Describe the graph and its lines of symmetry.

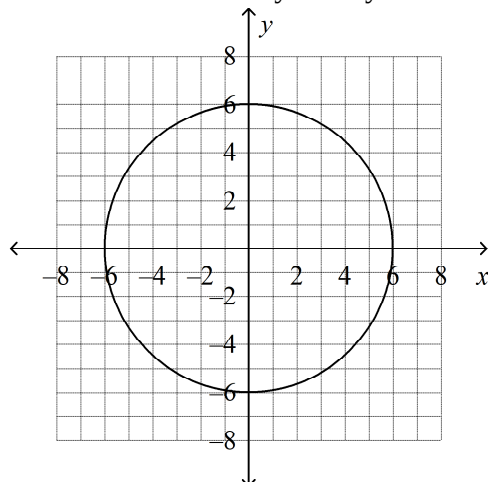
____ 65. $x^2 + y^2 = 36$

a.



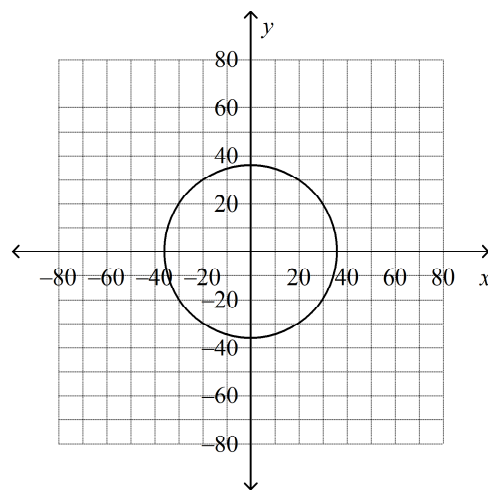
The graph is a circle of radius 6. Its center is at the origin. Every line through the center is a line of symmetry.

b.



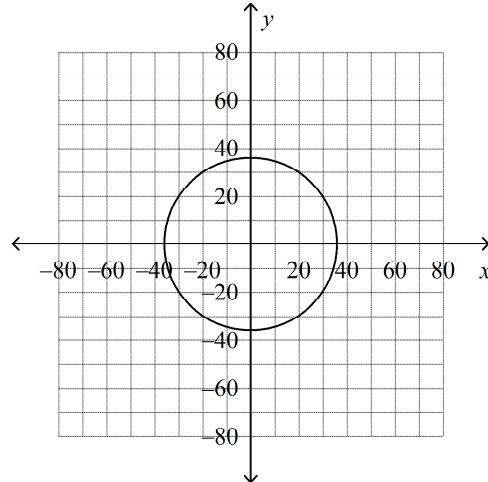
The graph is a circle of radius 6. Its center is at the origin. The y-axis and the x-axis are lines of symmetry.

c.



The graph is a circle of radius 36. Its center is at the origin. Every line through the center is a line of symmetry.

d.



The graph is a circle of radius 36. Its center is at the origin. The y-axis and the x-axis are lines of symmetry.

Instructional videos

Fraction Operations

https://www.youtube.com/results?search_query=operations+with+fractions+khan+academy

Quadratics:

<https://www.youtube.com/watch?v=4Bc5-HRop5Y>

<https://www.youtube.com/watch?v=0LgkWWUQQJg>

<https://www.youtube.com/watch?v=DD7tXI5i6Hw>

Linear Functions:

<https://www.youtube.com/watch?v=mzfmujVI-HA>

Parent Functions:

<https://www.youtube.com/watch?v=69-1pIiowXk>

<https://www.youtube.com/watch?v=Qt6X5KNbZ5c>

Domain and Range:

<https://www.youtube.com/watch?v=O0uUVH8dRiU>

Special Right Triangles:

<https://www.youtube.com/watch?v=tSHitjFIjd8>

<https://www.youtube.com/watch?v=Qwet4cIpnCM>

<https://www.youtube.com/watch?v=nVTtSE5nv7c>

Factoring:

https://www.youtube.com/watch?v=GMoqg_s4Dl4&list=PL99atIL9KVAP79qbl88iEE2eeGIwhcsLH

https://www.youtube.com/watch?v=X7B_tH4O-s&index=3&list=PL99atIL9KVAP79qbl88iEE2eeGIwhcsL