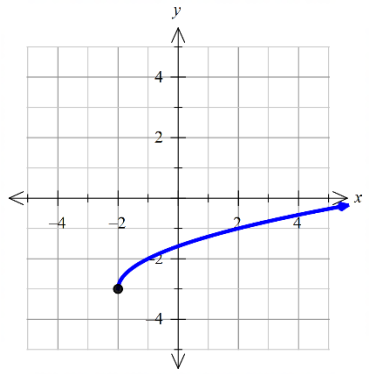
Name:_____ Period:_____

SM2H Quarter 1 Review (Units 1 and 2)

Find the domain and range of each function.

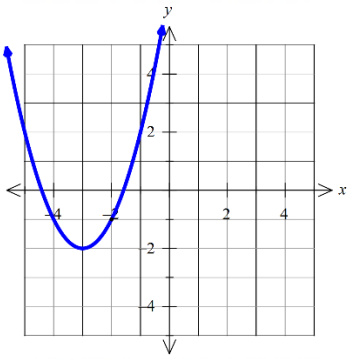
1.



Domain:_____

Range:_____

2.



Domain:_____

Range:_____

3. Posers is a modelling agency that specializes in providing multi-media exposure for its clients. Models who sign with this firm must sign an exclusive contract for a minimum of two years. The maximum length of time for a contract is five years. Posers charges $2,499.00 per year for their services. The rate is applied even if a client breaks the contract after part of a year. There is a one-time $49.99 signing fee.

   a. What unit does the real world domain represent?

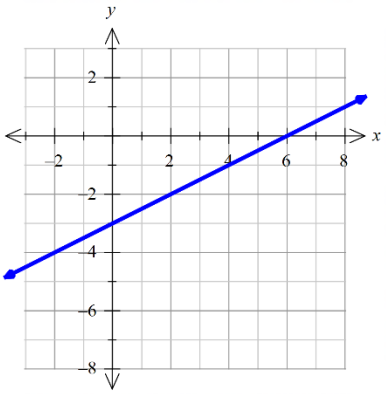
   b. What unit does the real world range represent?

   c. What is the real world domain? _____

   d. What is the real world range? _____

Find the intercepts of the given functions visually or algebraically. Write your answers as ordered pairs. You must show all your work for full credit.

4.



x-intercept:_____

y-intercept:_____

5. $4x - 9y = 36$

x-intercept:_____

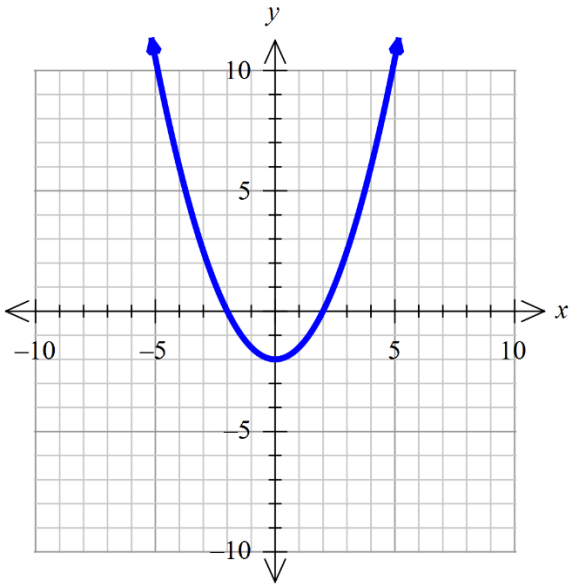
y-intercept:_____

Determine algebraically the type of symmetry for each of the following functions. Show all your work!

6. $f(x) = x^2$ 7. $g(x) = 3x + 6$ 8. $h(x) = 2x$

Use the graph to find the domain, range, intercepts, and the relative maximum or minimum of the function.

9.



Domain:_____

Range:_____

x-intercepts:_____ *y*-intercept:_____

Increasing:_____

Decreasing:_____

Positive:_____

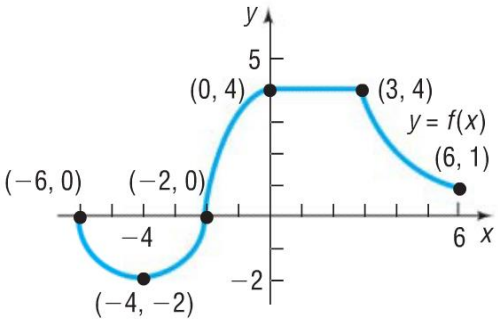
Negative:_____

Maximum/Minimum point(s):_____

Maximum/Minimum value(s):_____

Use the graph to find the intervals where the function is increasing, decreasing, constant, positive, and negative.

10.



Domain: _____ Range: _____

x-intercepts: _____ y-intercept: _____

Increasing:_____

Decreasing:_____

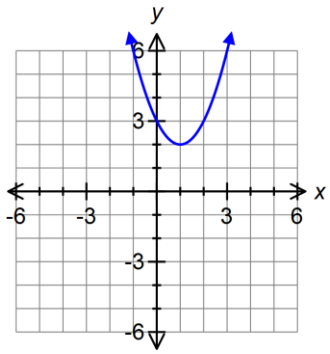
Constant:_____

Positive:_____

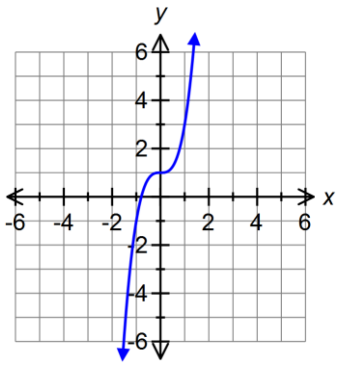
Negative:_____

Find the end behavior of each function based on its graph. Write the answers as <u>limits</u>.

11.



12.



For each function, identify the parent graph ($y = \sqrt{x}$, $y = x^2$, or $y = |x|$), then list the transformations needed to get from the parent graph to the final graph. Make sure to list the transformations in the order in which they should be applied.

13. $y = 2|x + 1| - 6$

Parent: _____

Transformations:

1.
2.
3.

14. $y = -3\sqrt{x} + 2$

Parent: _____

Transformations:

1.
2.

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

Parent: _____

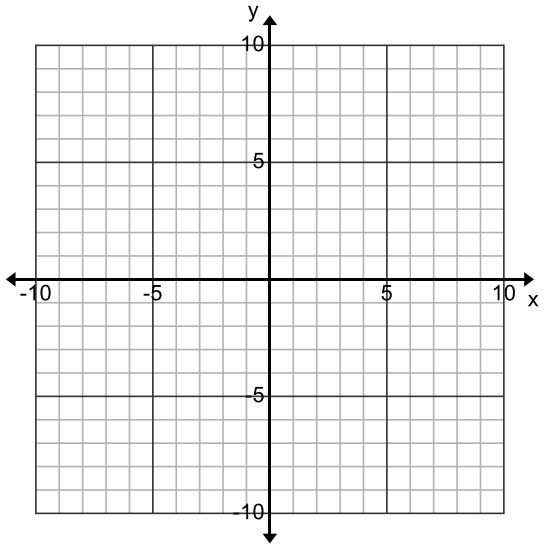
Transformations:

1.
2.
3.

Use transformations to graph each function. Create a table that clearly shows the original points and the transformations that will be applied. Graph the final transformed function on the grid provided. State the vertex or starting point and the domain and range.

16. Graph this function: $g(x) = -\frac{1}{2}(x - 3)^2 + 4$

List Transformations in order here:



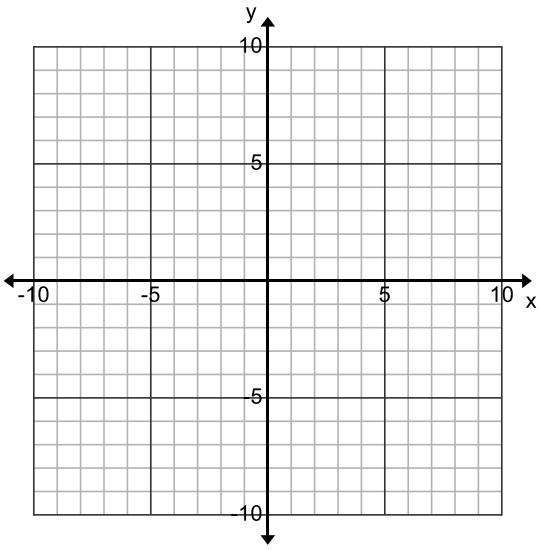
Tables:

Domain:_____ Range:_____ Vertex:_____

17. Graph this function: $f(x) = \sqrt{-(x+4)} - 6$

List Transformations in order here:

Tables:



Domain:_____ Range:_____ Endpoint:_____

Find the average rate of change for each function on the specified interval. Show your work!

18. $f(x) = |x-3| - 2,$ on $[-2,4]$

19. The height of an object is shown in the table. Find the average rate of change from 1-3 seconds.

Time (seconds)	Height (feet)
0	1
1	8
2	18
3	32

20. Write a complete sentence explaining what your answer means.

Simplify the following expressions. Your answers should contain only positive exponents.

21. $\dfrac{15x^{-2}y^4z^5}{12x^6y^{-1}z^{10}}$

22. $\left(\dfrac{3p^{-2}q^3}{6p^6q}\right)^{-2}$

23. $\left(\dfrac{a^2}{b^3}\right)^{-\frac{1}{2}}$

Simplify each radical expression.

24. $\sqrt[3]{54x^4y^3}$

25. $15\sqrt{28p^7q^6}$

26. $\sqrt{-60}$

Rewrite using rational exponents, use the rules of exponents to simplify, then write your answer in radical form.

27. $\sqrt[5]{\sqrt[4]{x^8}}$

28. $\sqrt[5]{t^4} \cdot \sqrt[6]{t^7}$

Add or subtract and simplify.

29. $2\sqrt{45} - 6\sqrt{3} + 15\sqrt{80}$

30. $(14 + 3i) - (15 - 5i)$

Multiply and simplify.

31. $\left(5 + \sqrt{2}\right)^2$

312. $\sqrt{-10} \cdot \sqrt{-10}$

33. $(6 + 8i)(7 - 2i)$

Simplify.

34. $\frac{6\sqrt{7}}{\sqrt{8}}$

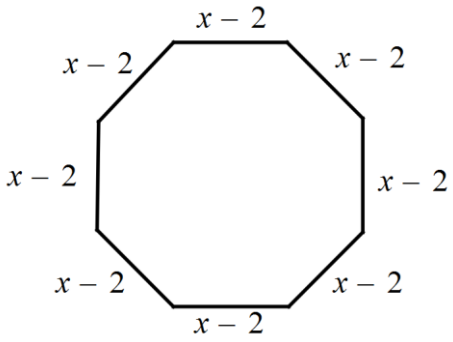
35. $\frac{3-\sqrt{2}}{1+2\sqrt{3}}$

36. $\frac{7+2i}{6-8i}$

37. $(4d + 8d^2) - (7d^2 - 6d)$

38. $(x - 2)(x + 6)^2$

39. Find the perimeter.



40. Find the area.