Math-2A   Name_____ ID: 1
SM2-A HW #6-5 (Review)   Date_____ Period_____
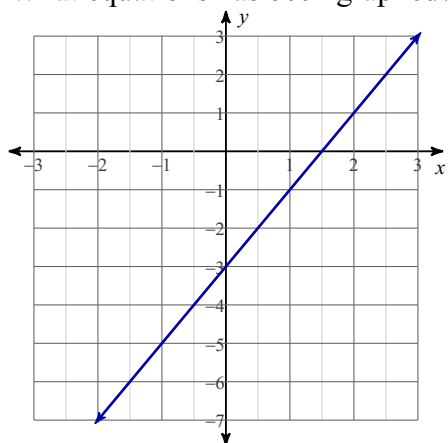
1) a) What is an inflection point?
    b) What two function types have an inflection point?
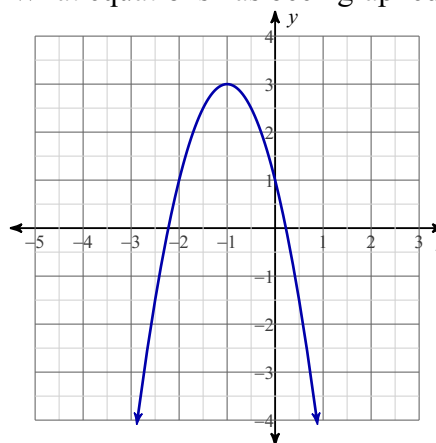
2) a) What is a vertex?
    b) What two function types have a vertex?

3) a) What function has an endpoint?
    b) What is the domain of the parent function for 'a' above.
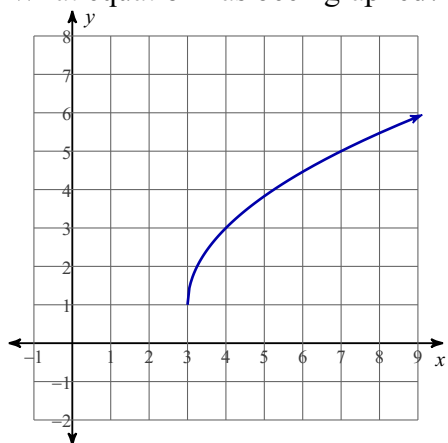
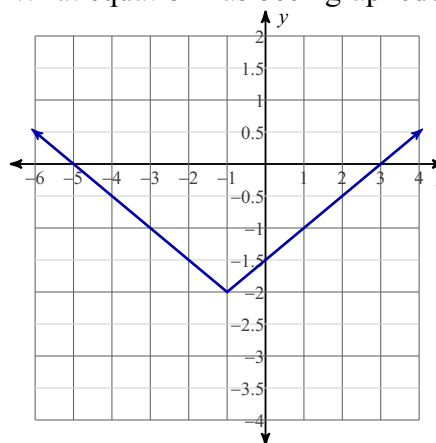4) What equations has been graphed?

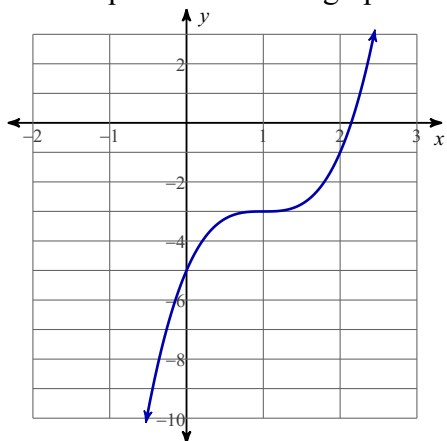5) What equations has been graphed?

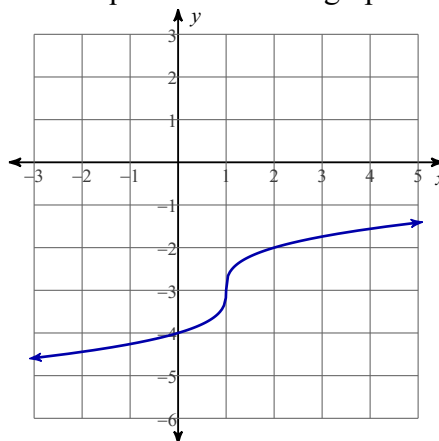6) What equation has been graphed?

7) What equation has been graphed?
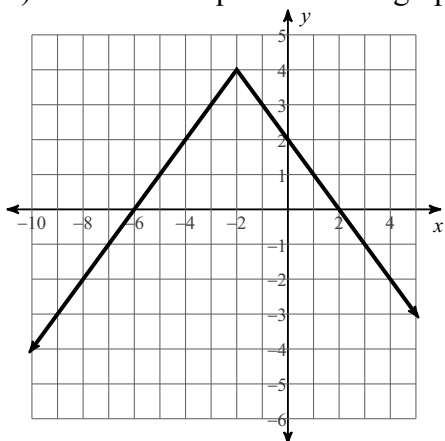
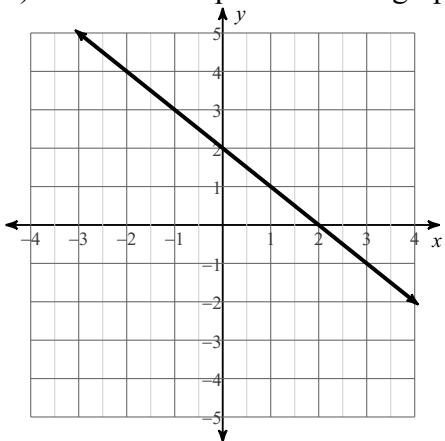8) What equation has been graphed?

9) What equation has been graphed?

10) Use interval notation for your answers (where appropriate)
   a) Where is the function negative?
   b) Where is the function positive?
   c) What is the domain?
   d) What is the range?
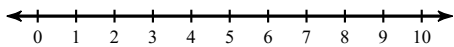   e) What is the equation of the graph?

11) Use interval notation for your answers (where appropriate)
   a) Where is the function negative?
   b) Where is the function positive?
   c) What is the domain?
   d) What is the range?
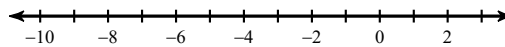   e) What is the equation of the graph?

Write the solution to the inequality using interval notation then graph its solution.
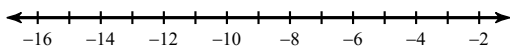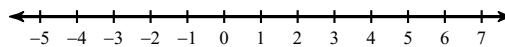
12) $-61 < 3 - 4(5k + 1)$

$$\xleftarrow{\hspace{0.3cm}}\underset{0\ \ 1\ \ 2\ \ 3\ \ 4\ \ 5\ \ 6\ \ 7\ \ 8\ \ 9\ \ 10}{\rule{8cm}{0.4pt}}\xrightarrow{\hspace{0.3cm}}$$

13) $n + 2 > -5$ and $-8n > -8$

$$\xleftarrow{\hspace{0.3cm}}\underset{-10\quad -8\quad -6\quad -4\quad -2\quad 0\quad 2}{\rule{8cm}{0.4pt}}\xrightarrow{\hspace{0.3cm}}$$

14) $\left|10 + r\right| \geq 3$

$$\xleftarrow{\hspace{0.3cm}}\underset{-16\quad -14\quad -12\quad -10\quad -8\quad -6\quad -4\quad -2}{\rule{8cm}{0.4pt}}\xrightarrow{\hspace{0.3cm}}$$

15) $\left|x - 5\right| \leq 1$

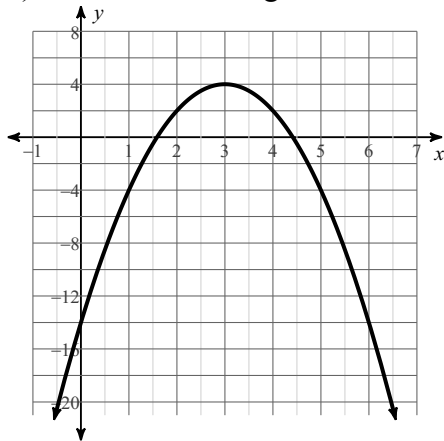$$\xleftarrow{\hspace{0.3cm}}\underset{-5\ -4\ -3\ -2\ -1\ 0\ 1\ 2\ 3\ 4\ 5\ 6\ 7}{\rule{8cm}{0.4pt}}\xrightarrow{\hspace{0.3cm}}$$

16) Use interval notation for your answers (where appropriate)
   a) Where is the function increasing?
   b) Where is the function decreasing?
   c) Where is the "extreme value"?
   d) Is the extreme value a minimum or a maximum?
   e) What is the average rate of change from x = 3 to x = 5

Simplify. Your answer should contain only positive exponents.

17) $4m^2n^4 \cdot m^4n^3$

18) $\left(2x^2y^4\right)^{-3}$

19) $\left(3a^{-3}b^4\right)^4$

20) $\dfrac{x^{-4}y^2}{2xy^4}$

Simplify.

21) $\sqrt[5]{-192n^2}$

22) $\sqrt{200m^2}$

23) Rewrite as a power:
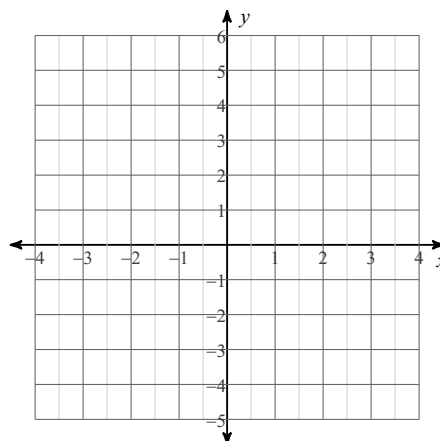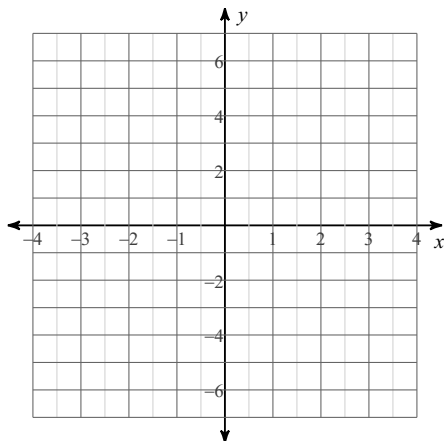
$\left(\sqrt[5]{3n}\right)^2$

24) Rewrite as a radical.

$(2x)^{\frac{3}{2}}$

25) Graph the following piece-wise defined function.

$y = \begin{cases} x + 2 \text{ for } x \geq 0 \\ -x^2 - 1 \text{ for } x < 0 \end{cases}$

26) Graph the following piece-wise defined function.

$y = \begin{cases} 2\left|x\right| + 2 \text{ for } x \geq 0 \\ -x^2 - 2 \text{ for } x < 0 \end{cases}$

Write the slope-intercept form of the equation of the line through the given points.

27) through: $(0, 5)$ and $(-1, 3)$

28) through: $(4, -3)$ and $(-2, -4)$