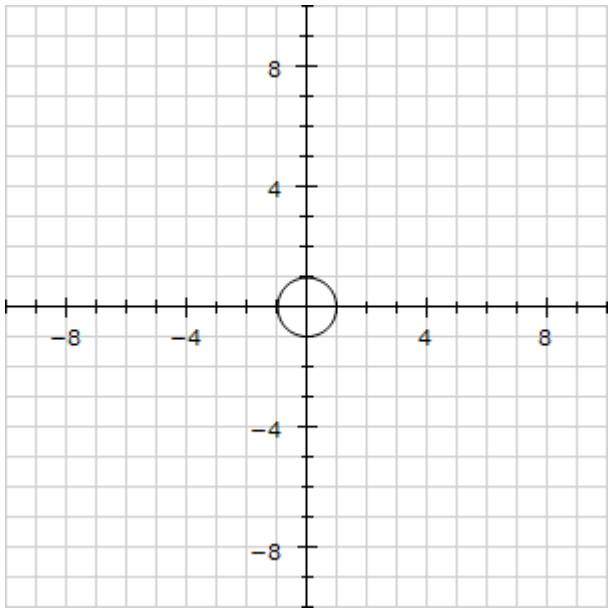
Non-linear Graphs Practice #3

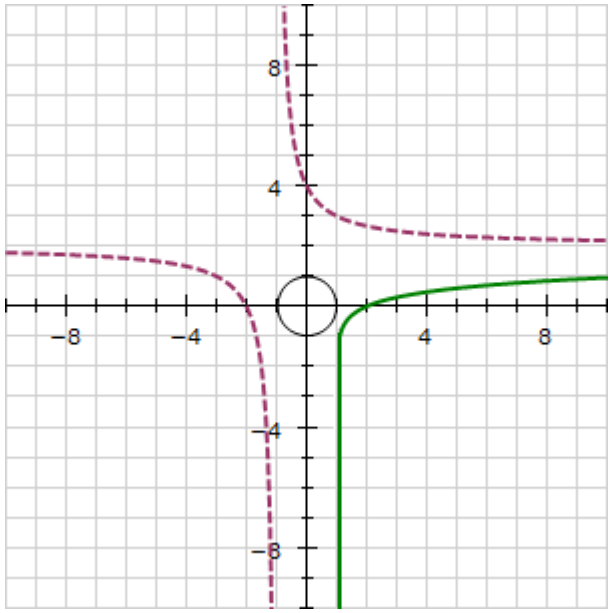
1. Sketch: $y = \frac{5}{x-2}$



2. Sketch: $y = \sqrt{x-1} - 2$

3. Sketch: $y = |x + 2| + 3$ for $^{-}4 < x < 4$

4. Rewrite the function $y = |x + 2| + 3$ so that every point on it is translated by $\binom{2}{4}$.



5. Write the equation for the solid line.

6. Write the equation for the dashed line.

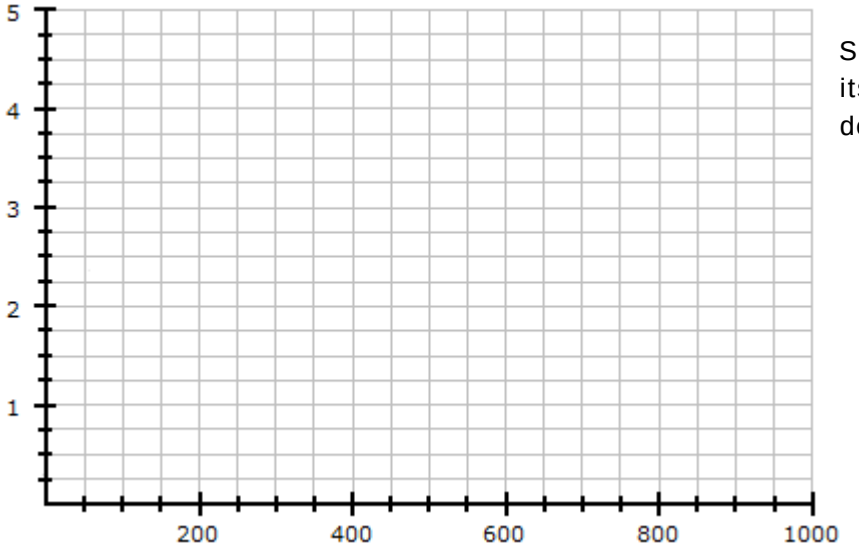
7. Write the equation of the polynomial that goes through ($^{-}2$, 0), (3, 0) (4, 0) and (0, 60).

8. A cake manufacturer knows that the cost of making a particular cake is given by the formula:

$$C = \frac{50}{n+20} + 1.75$$

where C is cost (in dollars) and n is the number of cakes made.

Describe, in detail, the cost of making the cakes in terms of how many are made.



Sketch the function, and include its relevant features in your description.

Answers: Non-linear Practice #3

1. Sketch: $y = \frac{5}{x-2}$ – solid line

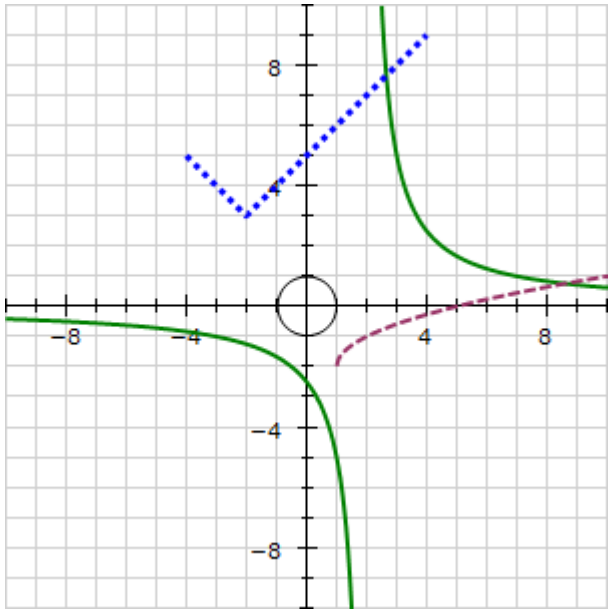
   asymptotes $x = 2$ & $y = 0$, intercept $(0, -2.5)$

2. Sketch: $y = \sqrt{x-1} - 2$ – dashed line

   starting point $(1, -2)$, intercept $(5, 0)$

3. Sketch: $y = |x + 2| + 3$ for $-4 < x < 4$

   – dotted line, vertex at $(-2, 3)$



4. Rewrite the function $y = |x + 2| + 3$ so that every point on it is translated by $\binom{2}{4}$.

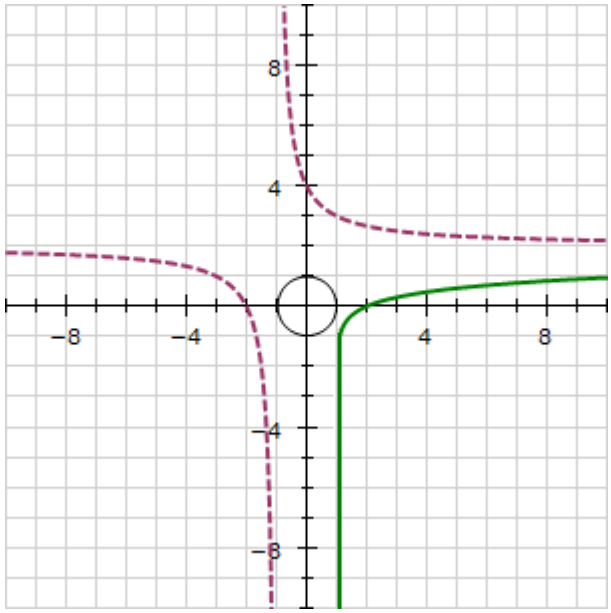
   $y = |x| + 7$

5. Write the equation for the solid line.

   $y = \log(x - 1)$

6. Write the equation for the dashed line.

   $y = \frac{2}{x+1} + 2$



7. Write the equation of the polynomial that goes through $(-2, 0)$, $(3, 0)$ $(4, 0)$ and $(0, 60)$.

   $y = 2.5(x + 2)(x - 3)(x - 4)$ any order

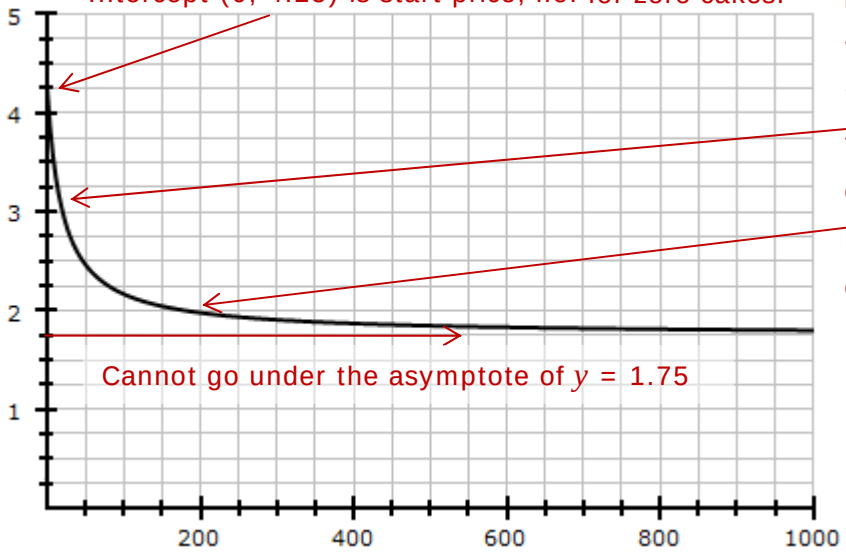
8. A cake manufacturer knows that the cost of making a particular cake is given by the formula:

$$C = \frac{50}{n+20} + 1.75$$

where C is cost (in dollars) and n is the number of cakes made.

Describe, in detail, how the cost of making the cakes relates to how many are made.

Intercept (0, 4.25) is start price, i.e. for zero cakes.



Each cake costs almost $4.25 when only a few are made, but the price initially drops rapidly from there. It is less than $2 a cake once over 180 are made. But from then on the price per cake drops very slowly. It will never drop below $1.75, no matter how many are made.