

Calc Inactive

EOC Released #9-12

9) $f(t) = -5t^2 + 20t + 60$

$a = -5$ $b = 20$ $c = 60$

Hit the ground ~ solutions, x-intercepts, zeros, roots!

$$\frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$\frac{-20 \pm \sqrt{20^2 - 4(-5)(60)}}{2(-5)}$$

$$\frac{-20 \pm \sqrt{400 + 1200}}{-10}$$

$$\frac{-20 \pm \sqrt{1600}}{-10} = \frac{-20 \pm 40}{-10}$$

$$\frac{-20+40}{-10} \quad \frac{-20-40}{-10}$$

$$= -2 \quad = 6$$

↑
time
cannot
be negative

$t = 6 \text{ seconds}$

10) $x = \text{Antonio's Age}$
 $y = \text{Sarah's Age}$

$$2x + 3y = 34$$

$$y = 5x$$

Sarah
 $y = 5x$
 $y = 5(2)$
 $y = 10$

Substitution - plug 5x in for y.

$$2x + 3y = 34$$

$$2x + 3(5x) = 34$$

$$2x + 15x = 34$$

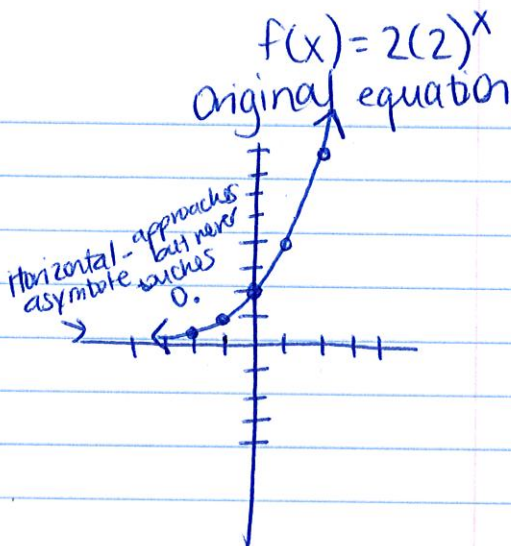
$$17x = 34$$

$$\frac{17x}{17} = \frac{34}{17}$$

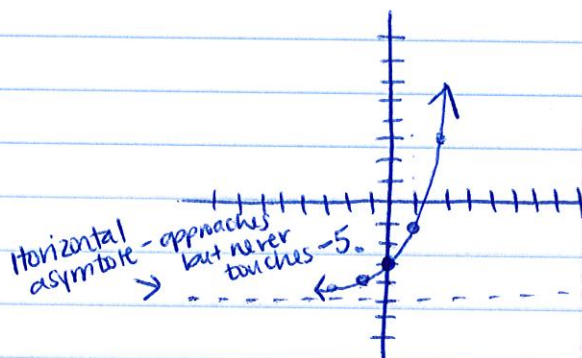
$$x = 2$$

⑪ $f(x) = 2(2)^x$

x	y
-2	$2(2)^{-2} = \frac{2}{2^2} = \frac{2}{4} = \frac{1}{2}$
-1	$2(2)^{-1} = \frac{2}{2} = 1$
0	$2(2)^0 = 2(1) = 2$
1	$2(2)^1 = 2(2) = 4$
2	$2(2)^2 = 2(4) = 8$



$f(x) = 2(2)^x + K$ ← Vertical shift



Value of K is -5 because the graph has been shifted down 5.

⑫ $f(x) = 2x + 12$

$$\begin{aligned} f(x) &= 2(7) + 12 \\ &= 14 + 12 \\ &= \$26 \text{ for } 7 \\ &\quad \text{movies} \end{aligned}$$

x = movies
Makayla has \$10
How much more to
rent 7 movies.

\$26 ← she needs

-\$10 ← she has

\$16 ← she needs \$16 more