

HOMWORK 7-1

1) GRAPH $y = 3^x$

X	Y
0	1
1	3
2	9
-1	$\frac{1}{3}$
-2	

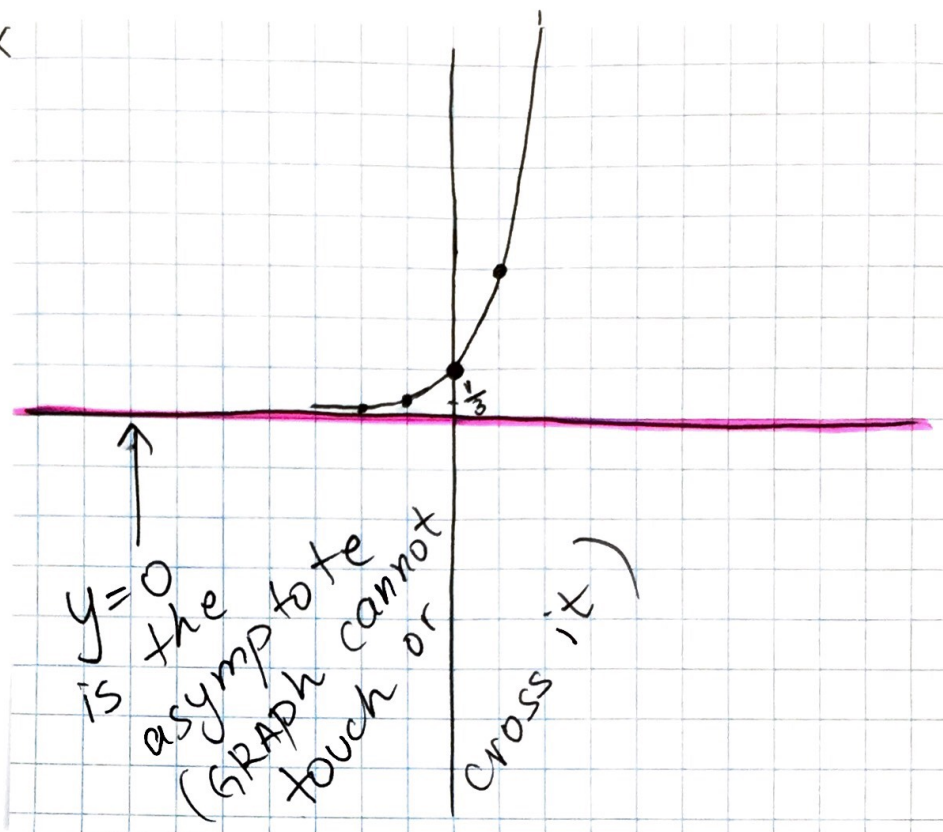
$$3^0 = 1$$

$$3^1 = 3$$

$$3^2 = 9$$

$$3^{-1} = \frac{1}{3}$$

$$3^{-2} = \frac{1}{9}$$



2) a) $y = 2\left(\frac{1}{2}\right)^x$ exponential decay because $\frac{1}{2} < 1$ ($\frac{1}{2}$ is less than 1)

b) $y = 20(1.75)^x$ exponential growth because $1.75 > 1$ (1.75 is greater than 1)

3) GROWS 1.3% per year

a) means $+1.3\% = 0.013$

$$\text{Growth factor} = 1 + 0.013 = \boxed{1.013}$$

$$P = 1,236,000 \quad t = 10$$

$$A = 1,236,000(1.013)^{10}$$

$$= 1,406,413.17$$

$$= \boxed{1,406,413} \text{ (population is whole number)}$$

b) depreciates 25% = 0.25
decay factor = $1 - 0.25 = \boxed{0.75}$

$$P = 18,000$$

$$t = 4$$

$$A = 18,000(0.75)^4$$

$$= \boxed{5,695.31}$$

4) a) $+45\% = 0.45$ | b) $-10\% = -0.10$
Growth because it's positive | decay because negative
Growth factor | decay factor
 $= 1 + 0.45$ | $= 1 - 0.10$
 $= \boxed{1.45}$ | $= \boxed{0.90}$

c) $-40\% = 0.40$
decay because negative
decay factor
 $= 1 - 0.40$
 $= \boxed{0.60}$

d) $+200\% = 2.00$
growth because +
growth factor
 $= 1 + 2 = \boxed{3}$
