Additional Practice Word Problems (Introduction, Graphing Functions)

See ANSWERS below on PAGE 2

Use the information given below to create a table, equation, and graph for the function.

1) Michael weighs 345 pounds and loses 8 pounds a week.

2) Andrea lives in Monroe, where the population is currently 2,000. If the population has annual growth rate of about 5%, what equation models the population?

3) Serena's hair is 14 inches long. It grows half an inch each month.

4) A car depreciates at a rate of 7% per year. If the value of the car in 2009 was $15,400, what equation models the value of the car?

Answers:

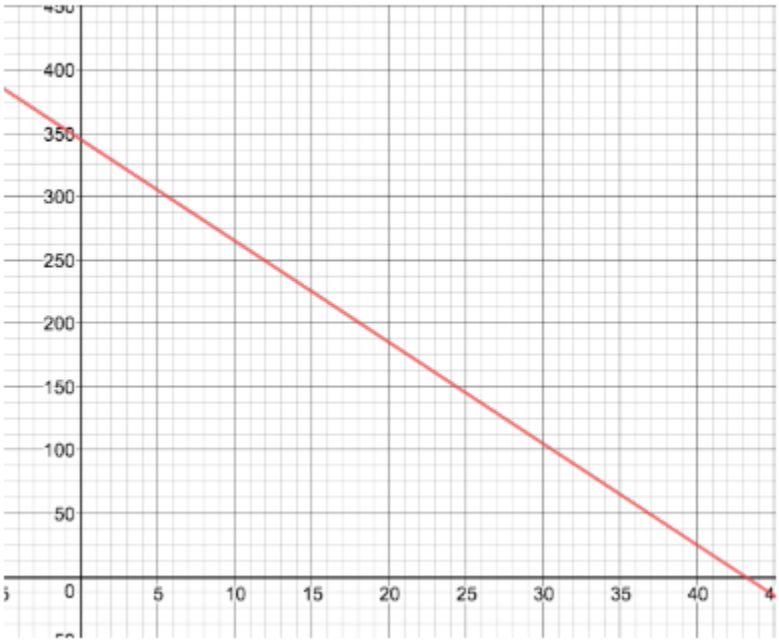
1) y=−8x+345

# of weeks	weight
0	345
1	337
2	329
3	321
4	313

weighs 345 (y-int)
loses 8 lbs (slope = -8)

$y = mx + b$

$y = -8x + 345$



2) y=2000(1.05)x

2000 (initial population) growth 5% rate = 0.05

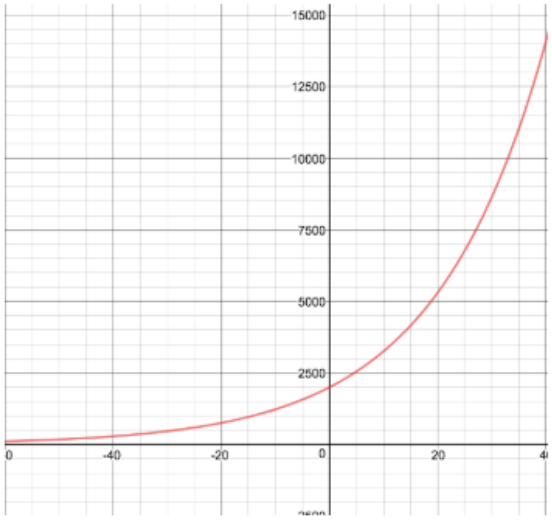
Exponential growth

$y = a(1+r)^x$

$y = 2000(1+0.05)^x$

$\boxed{y = 2000(1.05)^x}$

year	population
0	2000
1	2100
2	2205
3	2315.3
4	2431



3) y=1/2x+14

hair = 14in (y-int)

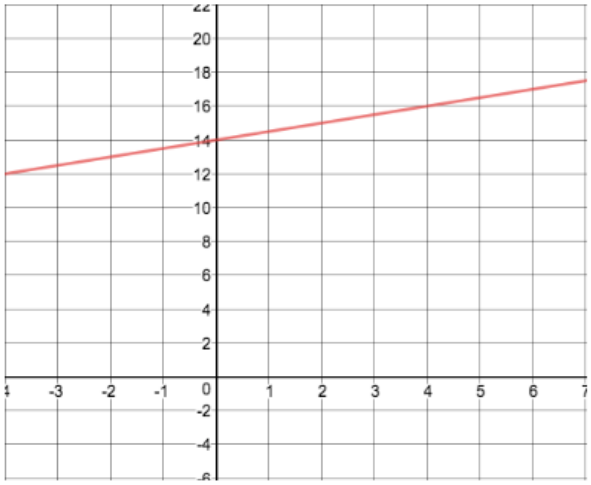
grows 1/2 in/month

slope = 1/2

$y = mx+b$

$\boxed{y = \frac{1}{2}x+14}$

# of months	length of hair
0	14
1	14.5
2	15
3	15.5
4	16



4) y=15400(0.93)x between 9 to 10 years or 9.55 years

initial value = 15400

rate of depriciation = 7% = 0.07

exponential decay

$y = a(1-r)^x$

$y = 15400(1-0.07)^x$

$\boxed{y = 15400(0.93)^x}$

year	car value
2009	15,400
2010	14,322
2011	13,319
2012	12,387
2013	11, 520
2014	10, 714