Algebra 1 ECA Remediation Name Answer Key

Homework 38.3

1. A baseball is thrown into the air and its height (h), in feet, can be modeled by the equation $h = -16t^2 + 30t + 6$, where t represents time in seconds.

   How many seconds will it take for the baseball to hit the ground (h=0) after it is thrown into the air?

   $0 = -16t^2 + 30t + 6$ $900 + 384 = 1284$

   $a = -16$ $b = 30$ $c = 6$ $x = \frac{-30 \pm \sqrt{30^2 - 4(-16)(6)}}{2(-16)}$

   $x = \frac{-30 - 35.8}{-32} = \frac{65.8}{32} = 2.1$

   Answer 2.1 sec

2. Suppose a soccer player kicks a ball and the height (h) of the ball in feet can be modeled by the equation $h = -16t^2 + vt + c$, where t is the time in seconds after the ball is kicked, v is the initial upward velocity, and c is the starting height.

   Write an equation that can be used to find the height (h) of the ball after t seconds if the initial upward velocity is 20 ft/sec and the starting height is 6 ft.

   $h = -16t^2 + 20t + 6$ $400 + 384 = 784$

   $a = -16$ $b = 20$ $c = 6$ $t = \frac{-20 \pm \sqrt{20^2 - 4(-16)(6)}}{2(-16)}$

   $t = \frac{-20 - 28}{-32} = \frac{-48}{-32} = 1.5$

   Answer $h = -16t^2 + 20t + 6$

   If the ball is not touched, how long will it take for the ball to reach the ground?

   Answer 1.5 sec

3. A woman is going to jump into a pool from a diving board that is 60 ft above the water. Her height (h) above the pool can be modeled by the equation $h = -16t^2 + vt + c$, where t is the time in seconds after the woman jumps, v is the initial upward velocity, and c is her starting height.

   Write an equation that can be used to find the height (h) of the woman after t seconds if her initial upward velocity is 4.5 ft/sec.

   $a = -16$ $b = 4.5$ $c = 60$

   $= 2860.25$ $20.25 + 2840$

   $x = \frac{-4.5 \pm \sqrt{4.5^2 - 4(-16)(60)}}{2(-16)}$

   Answer $h = -16t^2 + 4.5t + 60$

   How many seconds will it take for the woman to hit the water?

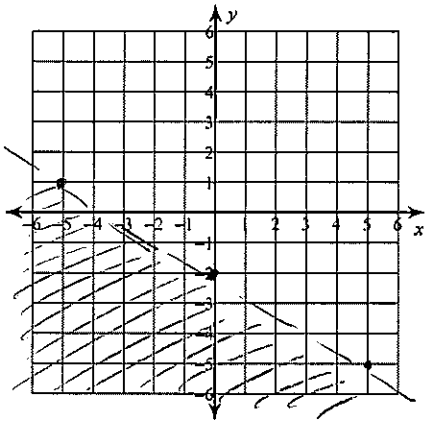
   $x = \frac{-4.5 - 62.13}{-32}$

   $= \frac{-66.6}{-32} = 2.08$

   Answer $t = 2.08$ sec

Sketch the graph of each linear inequality.

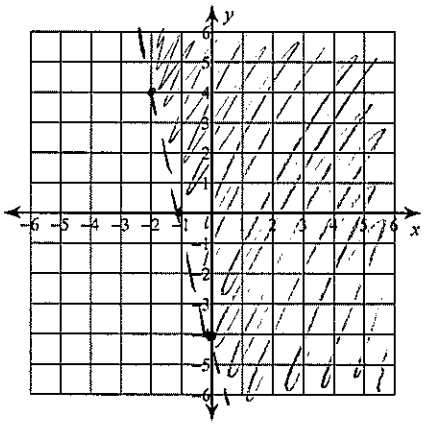
4. $y < -\frac{3}{5}x - 2$



$m = -\frac{3}{5}$

$b = -2$

5. $y > -4x - 4$



$m = -4$

$b = -4$

Divide.

6. $(3m^3 + 3m^2 + 5m) \div 6m^3$

$\frac{3m^3}{6m^3} + \frac{3m^2}{6m^3} + \frac{5m}{6m^3}$

$\frac{1}{2} + \frac{1}{2m} + \frac{5}{6m^2}$

7. $(20p^5 + 20p^4 + 20p^3) \div 4p^3$

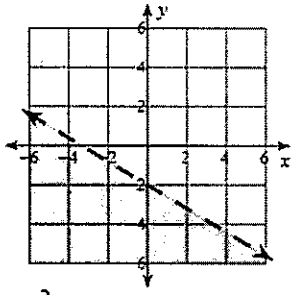
$\frac{20p^5}{4p^3} + \frac{20p^4}{4p^3} + \frac{20p^3}{4p^3}$

$5p^2 + 5p + 5$

Answers to Homework 38.3

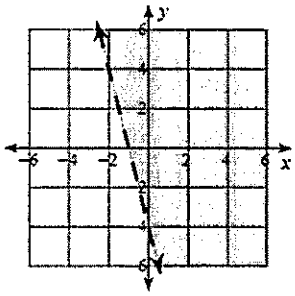
1. 2.1 seconds

2. $h = -16t^2 + 20t + 6$; 1.5 seconds



3. $h = -16t^2 + 60t + 4.5$; 3.8 seconds,

4.



5.

6. $\frac{1}{2} + \frac{1}{2m} + \frac{5}{6m^2}$

7. $5p^2 + 5p + 5$