Chapter 4 Test

1) $m = \dfrac{2-1}{-10-(-6)} = \dfrac{1}{-4} = -\dfrac{1}{4}$

3)

a) $m = \dfrac{5\text{ in}}{2\text{ yrs}} = 2.5\,\frac{\text{in}}{\text{yr}}$

b)

Time (yrs)	Height (in)
0	250
2	255
4	260

5) $2x + 3y = 6$
$3y = -2x + 6$
$y = -\frac{2}{3}x + 2$

a) $m = -\frac{2}{3}$
b) (0,2)

7) $y-(-2) = 5(x-1)$
$y + 2 = 5(x-1)$
$y + 2 = 5x - 5$
$y = 5x - 7$

9) Let m be the number miles a rental truck is driven. Company A charges $0.08m + 19.95$ dollars while Company B charges $0.05m + 22.95$ dollars. Both companies charge the same amount when

$0.08m + 19.95 = 0.05m + 22.95$
$0.03m + 19.95 = 22.95$
$0.03m = 3$
$m = 100$

Both companies charge the same amount when their trucks are driven 100 miles.

11) Substitute $3x - \frac{15}{7}$ for y in the second equation:
$6x + 7\left(3x - \frac{15}{7}\right) = 3$
$6x + 21x - 15 = 3$
$27x - 15 = 3$
$27x = 18$
$x = \frac{2}{3}$

Substituting $\frac{2}{3}$ for x in either equation and then solving for y gives $y = -\frac{1}{7}$.

Solution: $(\frac{2}{3}, -\frac{1}{7})$

13) Let x be the degree measure of the larger angle. Let y be the degree measure of the smaller angle. We have

$$x + y = 180$$
$$\frac{1}{3}x = y - 10$$

Solving for y in the first equation gives $y = 180 - x$. Substitution of $180 - x$ for y in the second equation and then solving for y gives

$$\frac{1}{3}x = (180 - x) - 10$$
$$\frac{1}{3}x = 180 - x - 10$$
$$\frac{1}{3}x = -x + 170$$
$$\frac{4}{3}x = 170$$
$$x = 127.5$$

Substituting 127.5 for x in either equation and then solving for y gives $y = 52.5$. The larger angle measures 127.5° and the smaller angle measures 52.5°.