

3.3/3.5 HW Solutions

Pg. 79 # 1-8, 13-19, 23-25

Friday, September 11, 2015
8:11 AM

For Exercises 1-4, use the following information.

In one state, the fine F for speeding on a 65-mile-per-hour highway is modeled by the equation $F = 50 + 10(s - 65)$, where s is the speed.

- Write an equation that you could solve to find the speed that would result in a fine of \$270.
- To use a table to solve for s , what would you use for a starting value for s ? Explain.
- Use a table to find the speed for a fine of \$270.
- Use the Properties of Equality to solve algebraically for s .

For Exercises 5-8, use the following information.

One cell-phone plan costs \$39.99 a month for 450 minutes of talking and unlimited texting. Each additional minute over 450 costs 45 cents. The total monthly cost for any number of minutes m that is greater than 450 can be modeled by $C = 39.99 + 0.45(m - 450)$.

- Write an equation that you could solve to find how many talk minutes were used in a month for which the total bill is \$136.74.
- To use a table to solve for m , what would you use for a starting value for m ? Explain.
- Use a table to find the number of talk minutes for a bill of \$136.74.
- Use the Properties of Equality to solve algebraically for m .

$$(1) 50 + 10(s - 65) = 270$$

(2) Start with 66 since there will be no fine unless the speed is more than 65 mph.

(3) 87 mph

$$(4) 50 + 10(s - 65) = 270$$

$$\frac{10(s - 65)}{10} = \frac{220}{10}$$

$$s - 65 = 22$$

$$s = 87 \text{ mph}$$

NORMAL FLOAT AUTO REAL DEGREE HP	
PRESS + FOR Δ Tbl	
X	Y1
85	250
86	260
87	270
88	280
89	290
90	300
91	310
92	320
93	330
94	340
95	350

X=87

$$(5) 39.99 + 0.45(m - 450) = 136.74$$

(6) Start with a number higher than 450, since the bill for 450 minutes would only be \$39.99.

(7) 665 min

NORMAL FLOAT AUTO REAL DEGREE HP	
PRESS + FOR Δ Tbl	
X	Y1
660	124.49
661	124.94
662	125.39
663	125.84
664	126.29
665	126.74
666	127.19
667	127.64
668	128.09
669	128.54
670	128.99

X=665

$$(8) 39.99 + 0.45(m - 450) = 136.74$$

$$.45(m - 450) = 96.75$$

$$m - 450 = 215$$

$$m = 665 \text{ min}$$

$$(13) 5y - 9 = 3y$$

$$2y = +9$$

$$y = 9/2$$

$$(14) 4R + 8 = 6R - 4$$

$$12 = 2R$$

$$R = 6$$

$$(15) 18 + 10(w - 1) = 6w$$

$$18 + 10w - 10 = 6w$$

$$10w + 8 = 6w$$

$$8 = -4w$$

$$w = -2$$

$$(16) 7z = 15 - 6(z - 4)$$

$$7z = 15 - 6z + 24$$

$$7z = 39 - 6z$$

$$13z = 39$$

$$z = 3$$

$$(17) 4(y + 5) = 2y + 28$$

$$4y + 20 = 2y + 28$$

$$2y = 8$$

$$y = 4$$

$$(18) 3 - 5(t + 6) = 8 - (4 - 2t)$$

$$3 - 5t - 30 = 8 - 4 + 2t$$

$$-27 - 5t = 10t - 4$$

$$-23 = 15t$$

$$t = -\frac{23}{15}$$

19) $8.6 + 2.1m = 3.7m - 4.2$
 $12.8 = 1.6m$
 $m = 8$

23) a) $L = 2(s) + 2(s-3)$ or $L = 4(s-1.5)$

A square sandbox is made with lumber that is 1.5 inches thick.



- If the outside dimensions of the sandbox are of length s (in inches), write an equation that models the total length L of lumber needed.
- How long is a side of the largest sandbox that can be made from a single 16-foot long piece of lumber?

Convert! ft to 16x12 in

b.) $192 = 2(s) + 2(s-3)$

$198 = 2s + 2s - 6$

$\frac{198}{4} = \frac{4s}{4}$

$s = 49.5 \text{ in}$

24) a) Many Answers, but e would be a good pick!

Consider the equation $\frac{y+1}{2} - 5 = \frac{2}{3}y$. To avoid having to combine fractions, you can multiply both sides of the equation by a common denominator.

- What is a common denominator for the fractions in the equation?
- Multiply both sides of the equation by your answer to Part (a) and simplify the result.
- Solve your equation from Part (b) for y .

b.) $6\left(\frac{y+1}{2}\right) - 6(5) = 6\left(\frac{2}{3}y\right)$

$3(y+1) - 30 = 2(2y)$

c.) $3y + 3 - 30 = 4y$

$3y - 27 = 4y$

$-27 = y$

25) ~~$\frac{2-x}{5} = \frac{4x+3}{2}$~~

$5(4x+3) = 2(2-x)$

$20x+15 = 4-2x$

$22x = -11$

$x = \frac{-11}{22} = \frac{-1}{2}$