

Warm up

Solve the equation if possible.

1. $6x + 22 = -3x + 31$
 $-22 \quad -22$
 $6x = -3x + 9$
 $+3x \quad +3x$
 $9x = 9$ $x=1$

2. $3x - 9 = 3x + 10$
 $-3x \quad -3x$
 $-9 = 10$ False
No Soln

3. $4(x - 5) = 4x - 20$
 $4x - 20 = 4x - 20$
 $-4x \quad -4x$
 $-20 = -20$
 Identity \mathbb{R}

4. $10(2 - x) + 4x = -\frac{1}{4}(4x + 8)$
 $20 - 10x + 4x = -1x - 2$
 $20 - 6x = -x - 2$
 $+x \quad +x$
 $20 - 5x = -2$
 $-20 \quad -20$
 $-5x = -22$
 $-5 \quad -5$
 $x = \frac{22}{5}$

3.5 Notes Day 2

3. A rental store will rent a bobcat for \$18 per hour with a \$20 rental fee, or it can be rented for the whole day for \$110. Write an expression to represent the cost, c , of renting it for h hours. Write an expression for the cost, c , of renting it for the whole day.

By the hour $c = 18h + 20$ For the day $c = 110$

Compare the two plans. How many hours are needed for the costs to be the same?
 $18h + 20 = 110$
 $-20 \quad -20$
 $18h = 90$
 $\frac{18h}{18} = \frac{90}{18}$ $h=5$ 5 hours are the cost same

For how many hours is it cheaper to rent by the hour?
 < 5

For how many hours is it cheaper to rent it for the day?
 > 5

4. A video store charges \$8 per video game to rent for a week. Membership to the video store is free. A video game club charges only \$3 per video game to rent for a week, but membership in the club is \$50 for the year. Write an expression to represent the cost, c , of renting g videos games under each plan.

Video store $c = 8g$ Video game club $c = 3g + 50$

For how many games are the costs the same?
 $8g = 3g + 50$
 $-3g \quad -3g$
 $5g = 50$ $g = 10$
10 games is when cost is same

For how many games is the store cheaper?
 < 10

For how many games is the club cheaper?
 > 10

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 3.5 Linear Equations and Problem Solving Day 2

Two More Problems wkst

*Put your NAME and Hour on the sheet

*Write **3.5 NOTES Cont.** on top of the sheet

1. At the local health club, you can become a member for \$200 and only pay \$5 per hour to use the racquetball courts. Nonmembers will pay \$10 per hour to use the courts. Write and solve an equation to find out how many hours you must use the courts for the member and nonmember costs to be the same. Show your equation and your work!

$$C = \text{cost} \quad h = \text{hour}$$

$$\text{member: } C = 5h + 200$$

$$\text{non-member: } C = 10h$$

$$\begin{array}{r} 5h + 200 = 10h \\ - 5h \qquad - 5h \\ \hline \end{array}$$

$$\frac{200}{5} = \frac{5h}{5} \quad h = 40$$

40 hrs the cost is the same

2. Company A charges \$30 for its monthly cell phone service, and this includes the first 100 minutes of use. For each additional minute over 100, you will be charged \$0.10 per minute. Company B charges \$50 for the month, and this includes 200 minutes of use. For each additional minute over 200, you will be charged \$0.05 per minute. Write and solve an equation to find the number of minutes you have to talk for the two plans to cost the same amount.

$$C = \text{cost} \quad m = \text{minute}$$

$$\text{Company A: } C = 0.10(m - 100) + 30$$

$$\text{Company B: } C = 0.05(m - 200) + 50$$

$$0.10(m - 100) + 30 = 0.05(m - 200) + 50$$

$$0.10m - 10 + 30 = 0.05m - 10 + 50$$

$$0.10m + 20 = 0.05m + 40$$

$$-0.05m \quad -0.05m$$

$$0.05m + 20 = 40$$

$$\begin{array}{r} 0.05m = 20 \\ \underline{0.05} \quad \underline{0.05} \\ m = 400 \end{array}$$

400 mins
the two plans
cost the same

3.5 Homework Day 2

- Finish Packet
- On BACK of 2 problems sheet do p.158 #45 & 46