

Name: _____

Math 1

Unit 1.2

Examples of

Solving Multi-Step Equations

Solve each equation.

1. $16 = 3x - 7x$ _____

2. $-5y - 4y = 18$ _____

3. $11 = -8a - 3a$ _____

4. $-4x - 8x = -12$ _____

5. $-3p - 7 + 6 = 17$ _____

6. $2 - 2x + 4x = 14$ _____

7. $-6(6y + 8) = 132$ _____

8. $-8(x - 3) + 1 = 89$ _____

9. $96 = -2(1 + 7x)$ _____

10. $-366 = -6(5 + 8k)$ _____

11. $-130 = 2x + 4(3x - 8)$ _____

12. $-6y + 7(1 + 8y) = -93$ _____

13. $-2x + \frac{8}{3}x = \frac{4}{3}$ _____

14. $-4 = -\frac{7}{2}x - \frac{5}{2}x$ _____

15. $-\frac{7}{6} = x + \frac{3}{2} + \frac{5}{3}x$ _____

16. $\frac{1}{2}y + \frac{7}{3} - \frac{2}{3}y = \frac{11}{4}$ _____

17. $-6.5x - 7x = 10.8$ _____

18. $1.45 = 5.6x - 7.05x$ _____

19. $7.5 + 0.2y - 0.4 = 6.78$ _____

20. $10.52 = 4.6y - 4.9 + 7.6$ _____

21. $2 - 3(6x + 6) = -106$ _____

22. $4x + 3(3 + 3x) = 87$ _____

23. Show two different ways to solve $20 = \frac{1}{2}(4x - 2)$

Math 1 Unit 1.2 continued

Write an equation to model each situation. Solve each equation.

24. General admission tickets to the fair cost \$4.00 per person. Ride passes cost an additional \$2.50 per person. Parking cost \$10.00 for the family. The total cost for ride passes and parking was \$49.00. How many people in the family attended the fair?
25. Janis and Robert are shopping for new guitar string at the mall. Janis buys 5 packs of strings. Robert buys 1 packs of strings and a set of picks. The set of picks cost \$10. The total cost is \$ 28. What is the cost of one pack of string?
26. Jim and Roberta are shopping for games at the mall. Jim buys 5 games. Roberta buys 2 games and a set of directions on playing the game better. The set of rules cost \$8. The total cost is \$ 102. What is the average cost of each game?
27. George has a part-time job. He works for 3 hours on Friday and 6 hours on Saturday. He also receives his \$30 per week allowance. He earns \$111 per week. How much did he earn per hour at the part-time job?
28. Angela ate at the same restaurant five times. Each time she ordered a salad and left a \$3 tip. She spent a total of \$42.50. What was the cost of each salad?

Unit 1.2 Practice

Solving Multi-Step Equations

Solve each equation.

1. $16 = 3x - 7x$ $x = -4$

2. $-5y - 4y = 18$ $y = -2$

3. $11 = -8a - 3a$ $a = -1$

4. $-4x - 8x = -12$ $x = 1$

5. $-3p - 7 + 6 = 17$ $p = -6$

6. $2 - 2x + 4x = 14$ $x = 6$

7. $-6(6y + 8) = 132$ $y = -5$

8. $-8(x - 3) + 1 = 89$ $x = -8$

9. $96 = -2(1 + 7x)$ $x = -7$

10. $-366 = -6(5 + 8k)$ $p = 7$

11. $-130 = 2x + 4(3x - 8)$ $x = -7$

12. $-6y + 7(1 + 8y) = -93$ $y = -2$

13. $-2x + \frac{8}{3}x = \frac{4}{3}$ $x = 2$

14. $-4 = -\frac{7}{2}x - \frac{5}{2}x$ $x = \frac{2}{3}$

15. $-\frac{7}{6} = x + \frac{3}{2} + \frac{5}{3}x$ $x = -1$

16. $\frac{1}{2}y + \frac{7}{3} - \frac{2}{3}y = \frac{11}{4}$ $y = -\frac{5}{2}$

17. $-6.5x - 7x = 10.8$ $x = -0.8$

18. $1.45 = 5.6x - 7.05x$ $x = -1$

19. $7.5 + 0.2y - 0.4 = 6.78$ $y = -1.6$

20. $10.52 = 4.6y - 4.9 + 7.6$ $y = 1.7$

21. $2 - 3(6x + 6) = -106$ $x = 5$

22. $4x + 3(3 + 3x) = 87$ $x = 6$

23. Show two different ways to solve $20 = \frac{1}{2}(4x - 2)$

$$20 = \frac{1}{2}(4x - 2)$$

$$20 = \frac{1}{2}(4x - 2)$$

$$\begin{pmatrix} 2 \\ 1 \end{pmatrix} (20) = \begin{pmatrix} 2 \\ 1 \end{pmatrix} \begin{pmatrix} 1 \\ 2 \end{pmatrix} (4x - 2)$$

$$20 = 2x - 1$$

$$40 = 4x - 2$$

$$20 + 1 = 2x - 1 + 1$$

$$40 + 2 = 4x - 2 + 2$$

$$21 = 2y$$

$$42 = 4x$$

$$\frac{21}{2} = \frac{2y}{2}$$

$$\frac{42}{4} = \frac{4x}{4}$$

$$\frac{21}{2} = y$$

$$\frac{21}{2} = x$$

Math 1 Unit 1.2 continued

Write an equation to model each situation. Solve each equation.

24. General admission tickets to the fair cost \$4.00 per person. Ride passes cost an additional \$2.50 per person. Parking cost \$10.00 for the family. The total cost for ride passes and parking was \$49.00. How many people in the family attended the fair?

$$\text{\$4.00 per person} + \text{\$2.50 per person} + \text{parking cost} = \text{\$49.00 total cost}$$

p = person

$$4p + 2.5p + 10 = 49$$

$$p = 6$$

There were 6 people who attended the fair.

25. Janis and Robert are shopping for new guitar string at the mall. Janis buys 5 packs of strings. Robert buys 1 packs of strings and a set of picks. The set of picks cost \$10. The total cost is \$ 28. What is the cost of one pack of string?

$$5 \text{ cost of packs of string} + 1 \text{ cost of packs of string} + \text{cost of picks} = \text{\$28 total cost}$$

s = packs of strings

$$5s + 1s + 10 = 28$$

$$s = 3$$

The cost of a pack of string is \$3.00.

26. Jim and Roberta are shopping for games at the mall. Jim buys 5 games. Roberta buys 2 games and a set of directions on playing the game better. The set of rules cost \$8. The total cost is \$ 102. What is the average cost of each game?

$$5 \text{ cost of games} + 2 \text{ games} + \text{cost of rules} = \$102$$

g = cost of games

$$5g + 2g + 8 = 102$$

$$g = \text{about } 13.4285714286 \dots$$

The average cost per game is about \$13.43.

27. George has a part-time job. He works for 3 hours on Friday and 6 hours on Saturday. He also receives his \$30 per week allowance. He earns \$111 per week. How much did he earn per hour at the part-time job?

$$3 \text{ hours} \times \text{rate per hour} + 6 \text{ hours} \times \text{rate per hour} + \text{weekly allowance} = \$111$$

E = earnings per hour

$$3E + 6E + 30 = 111$$

$$E = 9$$

George earns \$9.00 per hour.

28. Angela ate at the same restaurant five times. Each time she ordered a salad and left a \$3 tip. She spent a total of \$42.50. What was the cost of each salad?

$$5 \times (\text{cost of salad} + \$3 \text{ tip}) = \$42.50$$

s = cost of salad

$$5(s + 3) = 42.5$$

$$s = 5.5$$

The salad cost \$5.50.

