Name: KEY **Math 1**

Unit 1.2 Practice **Solving Multi-Step Equations**

Solve each equation.

1. $19 - h - h = -13$

$19 - h - h = -13$	Write the original problem
$19 - 2h = -13$	Combine like terms
$19 - (19) - 2h = -13 - (19)$	Subtract 19 from both side
$-2h = -32$	Simplify
$\frac{-2h}{-2} = \frac{-32}{-2}$	Divide by -2 to both side
$h = 16$	Simplify

3. $5n - 16 - 8n = -10$

$5n - 16 - 8n = -10$	Write the original problem
$-16 - 3n = -10$	Combine like terms
$-16 + (16) - 3n = -10 + (16)$	Add 16 to both side
$-3n = 6$	Simplify
$\frac{-3n}{-3} = \frac{6}{-3}$	Divide by -3 to both side
$n = -2$	Simplify

5. $42j + 18 - 19j = -28$

$42j + 18 - 19j = -28$	Write the original problem
$23j + 18 = -28$	Combine like terms
$23j + 18 - (18) = -28 - (18)$	Subtract 18 from both side
$23j = -46$	Simplify
$\frac{23j}{23} = \frac{-46}{23}$	Divide by 23 to both side
$j = -2$	Simplify

7. $6(3m + 5) = 66$

$6(3m + 5) = 66$	Write the original problem
$6(3m) + 6(5) = 66$	Distribute
$18m + 30 = 66$	Simplify
$18m + 30 - (30) = 66 - (30)$	Subtract 30 from both side
$18m = 36$	Simplify
$\frac{18m}{18} = \frac{36}{18}$	Divide by 18 to both side
$m = 2$	Simplify

9. $42 = 3(2 - 3h)$

$42 = 3(2 - 3h)$	Write the original problem
$42 = 3(2) + 3(-3h)$	Distribute
$42 = 6 - 9h$	Simplify
$42 - (6) = 6 - (6) - 9h$	Subtract 6 from both side
$36 = -9h$	Simplify
$\frac{36}{-9} = \frac{-9h}{-9}$	Divide by -9 to both side
$h = -4$	Simplify

11. $-3 = -3(2t - 1)$

$-3 = -3(2t - 1)$	Write the original problem
$-3 = -3(2t) - 3(-1)$	Distribute
$-3 = -6t + 3$	Simplify
$-3 - (3) = -6t + 3 - (3)$	Subtract 3 from both side
$-6 = -6t$	Simplify
$\frac{-6}{-6} = \frac{-6t}{-6}$	Divide by -9 to both side
$t = 1$	Simplify

13. $\frac{a}{7}+\frac{5}{7}=\frac{2}{7}$

$\frac{a}{7}+\frac{5}{7}=\frac{2}{7}$	Write the original problem
$7\cdot\left(\frac{a}{7}+\frac{5}{7}\right)=\left(\frac{2}{7}\right)\cdot 7$	Multiply both sides both Least Common Denominator (LCD), 7
$7\cdot\left(\frac{a}{7}\right)+7\cdot\left(\frac{5}{7}\right)=7\cdot\left(\frac{2}{7}\right)$	Distribute
$a+5=2$	Simplify
$a+5-(5)=2-(5)$	Subtract 5 from both side
$a=-3$	Simplify

15. $\frac{x}{3}-\frac{1}{2}=\frac{3}{4}$

$\frac{x}{3}-\frac{1}{2}=\frac{3}{4}$	Write the original problem
$12\cdot\left(\frac{x}{3}-\frac{1}{2}\right)=\left(\frac{3}{4}\right)\cdot 12$	Multiply both sides both Least Common Denominator (LCD), 12
$12\cdot\left(\frac{x}{3}\right)-12\cdot\left(\frac{1}{2}\right)=12\cdot\left(\frac{3}{4}\right)$	Distribute
$4x-6=9$	Simplify
$4x-6+6=9+6$	Add 6 from both side
$4x=15$	Simplify
$\frac{4x}{4}=\frac{15}{4}$	Divide by 4 to both side
$x=\frac{15}{4}$	Simplify

17. $0.52y+2.5=5.1$

$0.52y+2.5=5.1$	Write the original problem
$0.52y+2.5-(2.5)=5.1-(2.5)$	Subtract 2.5 from both side
$0.52y=2.6$	Simplify
$\frac{0.52y}{0.52}=\frac{2.6}{0.52}$	Divide by 0.52 to both side
$y=5$	Simplify

19. $-4.2 = 9.1x + 23.1$

$-4.2 = 9.1x + 23.1$	Write the original problem
$-4.2 - (23.1) = 9.1x + 23.1 - (23.1)$	Subtract 2.5 from both side
$-27.3 = 9.1x$	Simplify
$\frac{-27.3}{9.1} = \frac{9.1x}{9.1}$	Divide by 9.1 to both side
$x = -3$	Simplify

21. $x - 2(x + 10) = 12$

$x - 2(x + 10) = 12$	Write the original problem
$x - 2 \cdot (x) - 2 \cdot (10) = 12$	Distribute
$x - 2x - 20 = 12$	Simplify
$-x - 20 = 12$	Combine like terms
$-x - 20 + (20) = 12 + (20)$	Add 20 to both side
$-x = 32$	Simplify
$\frac{-x}{-1} = \frac{32}{-1}$	Divide by -1 to both side
$x = -32$	Simplify

23. Show two different ways to solve $-10 = \frac{1}{4}(8y - 12)$

$-10 = \frac{1}{4}(8y - 12)$

$\left(\frac{4}{1}\right)(-10) = \left(\frac{4}{1}\right)\left(\frac{1}{4}\right)(8y - 12)$

$-40 = 8y - 12$

$-40 + 12 = 8y - 12 + 12$

$-28 = 8y$

$\frac{-28}{8} = \frac{8y}{8}$

$-\frac{7}{2} = y$

$-10 = \frac{1}{4}(8y - 12)$

$-10 = 2y - 3$

$-10 + 3 = 2y - 3 + 3$

$-7 = 2y$

$\frac{-7}{2} = \frac{2y}{2}$

$-\frac{7}{2} = y$

Math 1 Unit 1.2 continued

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

25. Janis and Robert are shopping for new guitar string at the mall. Janis buys 3 packs of strings. Robert buys 2 packs of strings and a set of picks. The set of picks cost $15. The total cost is $ 40. What is the cost of one pack of string?

$3\ cost\ of\ packs\ of\ string + 2\ cost\ of\ packs\ of\ string + cost\ of\ picks = \$40\ total\ cost$
s=packs of strings
$3s + 2s + 15 = 40$
$5s + 15 = 40$
$5s + 15 - (15) = 40 - (15)$
$5s = 25$
$\frac{5s}{5} = \frac{25}{5}$
$s = 5$
The cost of a pack of string is $5.00.

27. George has a part-time job. He works for 5 hours on Friday and 7 hours on Saturday. He also receives his $50 per week allowance. He earns $146 per week. How much did he earn per hour at the part-time job?

$5\ hours\ x\ rate\ per\ hour + 7\ hours\ x\ rate\ per\ hour + weekly\ allowance = \$146$
E=earnings per hour
$5E + 7E + 50 = 146$
$12E + 50 = 146$
$12E + 50 - (50) = 146 - (50)$
$\frac{12E}{12} = \frac{96}{12}$
$E = 8$
George earns $8.00 per hour.