

Unit 4 Study Guide

Solve the following equations showing all steps.

<p>1. <math>\frac{1}{5}(n-7)+3=9</math></p> <p><math>\frac{1}{5}n + \frac{7}{5} + 3 = 9</math></p> <p><math>\frac{1}{5}n + \frac{22}{5} = 9</math></p> <p><math>\frac{1}{5}n = 9 - \frac{22}{5}</math></p> <p><math>\frac{1}{5}n = \frac{45}{5} - \frac{22}{5}</math></p> <p><math>\frac{1}{5}n = \frac{23}{5}</math></p> <p><math>n = 23</math></p> <p><math>n = 37</math></p>	<p>2. <math>0 = 5(k+9)</math></p> <p><math>0 = 5k + 45</math></p> <p><math>-45 = 5k</math></p> <p><math>-9 = k</math></p>
<p>3. <math>\frac{p}{3} - 7 = -2</math></p> <p><math>\frac{p}{3} = 5</math></p> <p><math>p = 15</math></p>	<p>4. <math>3(2n-7) = 9</math></p> <p><math>6n - 21 = 9</math></p> <p><math>6n = 30</math></p> <p><math>n = 5</math></p>
<p>5. <math>0.4p + 48.1 - 7p = -11.3</math></p> <p><math>-6.6p + 48.1 = -11.3</math></p> <p><math>-6.6p = -59.4</math></p> <p><math>p = 9</math></p>	<p>6. <math>7 - y + 5y = 9</math></p> <p><math>4y = 2</math></p> <p><math>y = \frac{1}{2}</math></p>
<p>7. <math>8e + 3(5 - e) = 10</math></p> <p><math>8e + 15 - 3e = 10</math></p> <p><math>5e + 15 = 10</math></p> <p><math>5e = -5</math></p> <p><math>e = -1</math></p>	<p>8. <math>-37 = 3x + 11 - 7x</math></p> <p><math>-37 = -4x + 11</math></p> <p><math>-48 = -4x</math></p> <p><math>12 = x</math></p>
<p>9. <math>\sqrt{x} + 14 = 30</math></p> <p><math>\sqrt{x} = 16</math></p> <p><math>(\sqrt{x})^2 = (16)^2</math></p> <p><math>x = 256</math></p>	<p>10. <math>14 + \frac{y}{-7} = 19</math></p> <p><math>\frac{y}{-7} = 5</math></p> <p><math>y = -35</math></p>

Solve for the variable indicated.

<p>11. <math>S = 3F - 24</math> (solve for F)</p> <p><math>S + 24 = 3F</math></p> <p><math>\frac{S + 24}{3} = F</math></p> <p><math>\frac{S}{3} + 8 = F</math></p>	<p>12. <math>5x + 7y = 3</math> (solve for y)</p> <p><math>7y = 3 - 5x</math></p> <p><math>y = \frac{3}{7} - \frac{5}{7}x</math></p>
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Solve each by 1) defining a variable, 2) setting up an equation, and 3) solving. Use the provided lines to complete steps 1-3.

~~202X7E44~~

13. 6 times a number increased by 17 is 19. Find the number.

Variable:  $X = a \#$

Equation: 
$$\begin{array}{r} 6X + 17 = 19 \\ -17 \quad -17 \\ \hline 6X = 2 \\ \frac{6X}{6} = \frac{2}{6} \\ X = \frac{1}{3} \end{array}$$

Solution:  $X = \frac{1}{3}$

14. 20 more than a number times -4 is equal to 44. What is the number?

Variable:  $X = a \#$

Equation: 
$$\begin{array}{r} 20 + (-4)X = 44 \\ -20 \quad \quad -20 \\ \hline -4X = 24 \\ \frac{-4X}{-4} = \frac{24}{-4} \\ X = -6 \end{array}$$

Solution:  $X = -6$

15. A store is selling a new couch for \$907.00 on a 24-month payment plan. If a down payment of \$145.00 is given, how much will a customer have to pay each month? Round your answer to the nearest penny.

Variable: ~~amount~~  $X = \text{amount paid per month}$

Equation: 
$$\begin{array}{r} 907 - 145 = X \\ \hline 24 \\ \hline 24X = 907 - 145 \\ 24X = 762 \\ \frac{24X}{24} = \frac{762}{24} \\ X = \$31.75 \end{array}$$

Solution:  $X = \$31.75$

16. A telephone company charges \$5 a month plus \$.15 a minute for long distance. If your total phone bill was \$16.25, how many minutes did you talk?

Variable:  $X = \# \text{ of minutes talking on phone per month}$

Equation: 
$$\begin{array}{r} 5 + 0.15X = 16.25 \\ -5 \quad \quad -5 \\ \hline 0.15X = 11.25 \\ \frac{0.15X}{0.15} = \frac{11.25}{0.15} \\ X = 75 \end{array}$$

Solution:  $X = 75$

17. Mike has 27 DVDs. This is 5 less than 4 times the number that Jed has. How many does Jed have?

Variable:  $X = \# \text{ of DVDs Jed has}$

Equation: 
$$\begin{array}{r} 27 = 4X - 5 \\ +5 \quad \quad +5 \\ \hline 32 = 4X \\ \frac{32}{4} = \frac{4X}{4} \\ X = 8 \end{array}$$

Solution:  $X = 8$

18. Laura has 7 more than 3 times the number of bracelets that Penelope has. If together they have 103 bracelets, how many does each girl have?

Variables:  $Laura = 7 + 3 \text{ Penelope}$   
 $p = \text{penelope \# of bracelets}$

Equation: 
$$\begin{array}{r} p + 7 + 3p = 103 \\ 4p + 7 = 103 \\ -7 \quad -7 \\ \hline 4p = 96 \\ \frac{4p}{4} = \frac{96}{4} \\ p = 24 \end{array}$$

Solutions:  $p = 24$   $Laura = 79$

81  
907  
145  
762

3 24  
24 7  
8 168  
142

31.75  
24 762.00  
72  
342  
24  
180

15 3  
9 15  
5 105

0.15 11.25  
2  
4 96  
8  
16

75  
15 1125  
105  
75  
-75  
0

24 3  
72 7  
79