

3.1 Solving equations - Addition property

$$\begin{array}{r}
 x + 6 = 12 \\
 -6 \quad -6 \\
 \hline
 x + 0 = 6 \\
 x = 6
 \end{array}$$

$a = b$   
 $a + c = b + c$   
 $6 + 6 = 12$   
 $12 = 12 \checkmark$

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3.2 - Solving Equations - multiplication property

$$\begin{array}{r}
 3x = 12 \\
 \frac{1}{3}(3x) = \frac{1}{3}(12) \\
 x = 4
 \end{array}$$

$a = b$   
 $ca = cb$   
 $3(4) = 12$   
 $12 = 12 \checkmark$

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$$\begin{array}{r}
 \frac{1}{3}x = 6 \\
 \frac{1}{3} \quad \frac{1}{3} \\
 \hline
 x = 18
 \end{array}$$

$6 \div \frac{1}{3}$   
 $6 \cdot \frac{3}{1}$   
 $18$   
 $\frac{1}{3}(18) = 6$   
 $6 = 6$

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3.3 - Solving Equations - add and mult properties

$$\begin{array}{r}
 2x + 6 = 14 \\
 -6 \quad -6 \\
 \hline
 2x = 8 \\
 \frac{2}{2} \quad \frac{2}{2} \\
 x = 4
 \end{array}$$

$2(4) + 6 = 14$   
 $8 + 6 = 14$   
 $14 = 14$

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$$\begin{array}{r}
 -5x + 7x + 2 = -14 \\
 2x + 2 = -14 \\
 -2 \quad -2 \\
 \hline
 2x = -16 \\
 \frac{2}{2} \quad \frac{2}{2} \\
 x = -8
 \end{array}$$

$-5(-8) + 7(-8) + 2$   
 $40 - 56 + 2$   
 $-16 + 2$   
 $-14 \checkmark$

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3.5 - Language of Algebra

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examples 1, 2, 3

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12 increased by 6  
 $12 + 6$

4 increased by (3 times some number)  
 $4 + 3x$

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7 less than 10  
 $10 - 7$

12 less than 3 times some num  
 $3x - 12$

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#8 75 14) 5 more than twice a number  
 $5 + 2x$

18) 14 less than three times a number  
 $3x - 14$

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3.6 - Steps for solving word problems

**Read:** Identify what is given and what you are looking for

**Plan:** pick variable names and write an equation

**Solve** the equation :)

**Check** the solution and determine if the solution is **Reasonable**.

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#79 #3) Barbara's age  
 $B - 20 = 50$   
 less than  
 $+20 \quad +20$   
 $B = 70$

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$70 - 20 = 50$   
 $50 = 50 \checkmark$

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#13)  $2H - 2 = 72$   
 $+2 \quad +2$   
 $\frac{2H}{2} = \frac{74}{2}$   
 $H = 37$

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$2(37) - 2 = 72$   
 $74 - 2 = 72$   
 $72 = 72$

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cost = what the seller paid  
price = what you pay  
profit = price - cost

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18) M - Mac's mass  
 $5 + 3M - 2M = 60$   
 $5 + M = 60$   
 $M = 55 \text{ kg}$

4 Hi ☺

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Chapter 3 homework  
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