

**3** I can use previous skills learned as they apply to Chapter 3 topics.

**3.1A** I can solve an equation using subtraction.

*Ex 1a: Solve  $x + 4 = 9$*

**3.1B** I can solve an equation using addition.

*Ex 1b: Solve  $x - 10 = 6$*

**3.1C** I can solve an equation using division.

*Ex 1c: Solve  $4x = 16$*

**3.1D** I can solve an equation using multiplication.

*Ex 1d: Solve  $\frac{x}{3} = 6$*

**3.1E** I can solve an equation by multiplying by a reciprocal.

*Ex 1e:  $-\frac{4}{3}x = 8$*

**3.1F** I can translate a word problem into a one-step equation and solve.

*Ex 1f: In 2004 Summer Olympics, Inge de Bruijn won the women's 50-meter freestyle. Her winning time was 24.58 seconds. Find her average swimming speed to the nearest hundredth of a meter per second.*

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**3.2A** I can solve a two-step equation.

*Ex 2a:  $\frac{x}{5} + 7 = 10$*

**3.2B** I can solve a two-step equation by combining like terms.

*Ex 2b:  $6x + 8x = 28$*

**3.2C** I can substitute an input value and evaluate.

*Ex 2c: The output of a function is 6 less than 2 times the input. Find the input if the output is -10.*

**3.2D** I can translate a word problem into a two-step equation and solve.

*Ex 2d: A contractor purchases ceramic tile to remodel a kitchen floor. Each tile costs \$4, and the adhesive and grouting material costs \$17.82. If the contractor is charged a total of \$545.82, how many ceramic tiles did the contractor purchase?*

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**3.3A** I can solve a multi-step equation by combining like terms.

*Ex 3a:*  $2x + 7x - 5 = 31$

**3.3B** I can solve a multi-step equation using the distributive property.

*Ex 3b:*  $3x - 4(x - 2) = 9$

**3.3C** I can solve a multi-step equation by multiplying by the reciprocal.

*Ex 3c:*  $\frac{3}{5}(5x - 10) = 24$

**3.3D** I can translate a word problem into a multi-step equation and solve.

*Ex 3d: Edmund and Ruberto took a 7-day (168 hours), 90-mile canoe trip down the Allagash River. If they paddled at an average rate of 2.5 miles per hour, how many hours did they spend NOT paddling? Write an equation and solve to find the answer.*

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**3.4A** I can solve an equation with variables on both sides.

*Ex 4a:*  $2x - 5 = 10x + 3$

**3.4B** I can solve an equation with grouping symbols (usually parenthesis).

*Ex 4b:*  $2(3x + 4) = 10x - 8$

**3.4C** I can translate a word problem into an equation and solve.

*Ex 4c: A music website sold 94 single songs and 67 albums today. The number of single downloads is increased by 22 each day. The number of album downloads has been decreasing by 5 each day. If these trends continue, in how many days will the number of single downloads be ten times the number of album downloads? Write and solve an equation to find the number of days.*

**3.4D** I can identify if an equation has one, none, or many solutions.

*Ex 4d: Identify the number of solutions for:*  $-(6x - 3) = 4x - 10x + 3$

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**3.5A** I can write a ratio.

*Ex 5a: Abby and Lisa are selling girl scout cookies. Write the ratio of the number of cookies Abby sold to the number of cookies Lisa sold if Abby sold 10 boxes and Lisa sold 35 boxes.*

**3.5B** I can simplify a ratio.

*Ex 5b: Simplify the ratio 26:13*

**3.5C** I can set-up a proportion.

*Ex 5c: On Monday, biologists tagged 150 sunfish from a lake. On Friday, the biologists counted 12 tagged fish out of a sample of 400 sunfish from the same lake. Estimate the total number of sunfish in the lake.*

**3.5D** I can solve a proportion.

*Ex 5d: Solve  $\frac{5}{3w-4} = \frac{-3}{1-2w}$*

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**3.6A** I can cross multiply to solve a proportion.

*Ex 6a: Solve:  $\frac{x}{5} = \frac{6}{15}$*

**3.6B** I can translate a word problem into a ratio or proportion and solve.

*Ex 6b: At a pet show, the ratio of dogs to cats is 4:3. If the number of cats at the show is 45, find the number of dogs at the show.*

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**3.7A** I can solve percent problems using proportions or algebraic equations.

*Ex 7a: a) What number is 40% of 220?*

*b) What percent of 30 is 20?*

*c) 75 is 150% of what number?*

**3.7B** I can solve a real-world percent problem.

*Ex 7b: In a recent country election, 16,400 registered voters voted, which was a 32% voter turnout. How many registered voters are there in the country?*

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**3.8A** I can solve a literal equation.

*Ex 8a: Given the following literal equation, solve for  $m$   $y = mx + b$*

**3.8B** I can rewrite an equation.

*Ex 8b: Rewrite each equation so that  $y$  is a function of  $x$ .  $4x - 8y = -16$*

**3.8C** I can solve and use a geometric formula.

*Ex 8c: Use the formula  $A = \pi r^2 h$  to a) solve for  $h$*

*b) find the height of a cylinder with Area =  $45\pi\text{cm}^2$   
and radius =  $3\text{cm}$ .*

**3.8D** I can rewrite an equation to solve a real-world problem.

*Ex 8d: Anthropologists can estimate the height of a woman by measuring the length of her radius bone (from the wrist to the elbow). The length of the radius bone  $b$  is given by  $b = 0.26h - 18.85$  where  $h$  is the height (in centimeters) of the woman.*

*a) Solve the equation for  $h$ .*

*b) If the height of the woman's radius bone is 25 centimeters, estimate the height of the woman. Round your answer to the nearest centimeter.*