Name _____ Date _____

Volume 3 Lesson 1 Supplemental Worksheet

1. The first rule to solving for x is to GET x _____ _____.

2. To move numbers to the other side of the equal sign, use the O_____

   O_____.

3. The opposite of addition is _____.

4. The opposite of subtraction is _____.

Solve for x.

5. $x + 8 = 30$

6. $x + 12 = 19$

7. $x - 15 = 40$

$x =$ _____

$x =$ _____

$x =$ _____

8. $x - 40 = 50$

9. $x + 7 = 27$

10. $x + 14 = 28$

$x =$ _____

$x =$ _____

$x =$ _____

11. $99 + x = 44$

12. $7 + x = 50$

13. $x - 18 = -1$

$x =$ _____

$x =$ _____

$x =$ _____

Try to solve for x in the following problems just by looking at them. If you can't solve it in your mind, then use algebra.

14. $x + 8 = 18$

15. $x - 5 = 10$

16. $x + 10 = 20$

17. $20 + x = 25$

18. $35 + x = 40$

19. $x + 5 = -1$

Name _____ Date _____

Volume 3 Lesson 1a Supplemental Worksheet

Solve for x.

1. $\frac{2}{15} + x = \frac{2}{5}$

2. $x - \frac{4}{8} = \frac{1}{2}$

3. $-5 + x = 1\frac{7}{8}$

4. $\frac{7}{12} + x = -\frac{3}{24}$

5. $x - \frac{9}{16} = -\frac{3}{8}$

6. $x - \frac{3}{4} = 6\frac{1}{4}$

7. $-9 + x = \frac{42}{90}$

8. $10.75 + x = -3.25$

9. $x - -\frac{3}{10} = \frac{8}{10}$

10. $-\frac{3}{27} - -x = -\frac{37}{54}$

Name _____ Date _____

Volume 3 Lesson 2 Supplemental Worksheet

1. $12x = 144$

2. $16x = 176$

3. $9x = 4.5$

4. $165 = 11x$

5. $64 = 8x$

6. $7x = 49$

7. $72 = 9x$

8. $3x = 54$

9. $6x = 72$

10. $238 = 2x$

Volume 3 Lesson 2 Supplemental Worksheet page 2

11. $48 = 4x$

12. $100 = .5x$

13. $3x = 72$

14. $81.17x = 568.19$

15. $17x = 153$

16. $98x = 49$

17. $\frac{1}{2}x = 12$

18. $-\frac{1}{3}x = 45$

19. $\frac{1}{4}x = 3$

20. $-\frac{35}{72} = -\frac{7}{8}x$

Name _____ Date _____

Volume 3 Lesson 2a Supplemental Worksheet

1. $-8x = -56$

2. $3x = -18$

3. $-\frac{1}{2}x = 24$

4. $-\frac{15}{16}x = 4\frac{11}{16}$

5. $\frac{5}{8}x = -6\frac{1}{4}$

6. $-5 = \frac{5}{8}x$

7. $-18x = 36$

8. $17x = 12\frac{3}{4}$

9. $-60x = -30$

10. $\frac{1}{2}x = -100$

Name _____ Date _____

Volume 3 Supplemental Worksheet

Cross Canceling Practice

Cross cancel the multiplication problems.

1. $\frac{5}{1} \times \frac{x}{5} =$

2. $\frac{7}{1} \times \frac{3}{7} =$

3. $\frac{x}{5} \times \frac{5}{3} =$

4. $\frac{11}{1} \times \frac{7}{11} =$

5. $\frac{8}{x} \times \frac{x}{4} = \frac{2}{1}$

6. $\frac{6}{1} \times \frac{x}{12} =$

7. $\frac{9}{1} \times \frac{x}{3} = \frac{3x}{1}$

8. $\frac{x}{1} \times \frac{10}{x} =$

9. $\frac{12}{1} \times \frac{a}{12} =$

10. $\frac{3}{1} \times \frac{12}{3} =$

11. How much is 4 times $\frac{x}{4}$? $\frac{4}{1} \times \frac{x}{4} =$

12. How much is x times $\frac{15}{x}$? $\frac{x}{1} \times \frac{15}{x} =$

Name _____ Date _____

Volume 3 Lesson 3 Supplemental Worksheet

1. $\frac{x}{9} = 3$

2. $\frac{x}{3} = 21$

3. $\frac{x}{11} = 5$

4. $\frac{x}{24} = 4$

5. $\frac{x}{84} = \frac{1}{2}$

6. $\frac{x}{\frac{3}{4}} = 8$

7. $\frac{x}{12} = 3$

8. $\frac{x}{6} = -8$

9. $\frac{x}{3} = 18$

10. $38 = \frac{x}{2}$

11. $-35 = \frac{x}{-2}$

12. $-\frac{5}{8} = \frac{x}{4.96}$

13. Annie is entering a video into an acting competition. Each video must be a minimum of two minutes in length. Annie's video is only 98 seconds long. Use the equation below to find how many seconds she must add to her video.

$$98 \; seconds + x = 120 \; seconds$$

Name _____ Date_____

Volume 3 Lesson 4 Supplemental Worksheet

Solve for x.

1. $x - 120 = 72$

2. $3x - 8 = -44$

3. $-x - 15 = -30$

4. $84 - -x = 90$

5. $-24 - x = -56$

6. $.07x - .5 = 6.5$

7. $-19 - -x = -12$

8. $720 = -x - 1000$

9. $64 + (-x) = -2$

10. $\frac{3}{8}x - \frac{5}{16} = -\frac{2}{16}$

11. $-x + 45 = 20$

12. $-29x + 108 = 50$

Volume 3 Lesson 4 Supplemental Worksheet page 2

13. $-16x + 8 = 40$

14. $-18 = 3x - 45$

15. $1 - .003x = .988$

16. $-x - -80 = -200$

Name _____Date_____

Volume 3 Lesson 5 Supplemental Worksheet

Solve for x.

1. $\frac{36}{x} = 6$

2. $\frac{x}{11} = 6$

3. $\frac{18}{x} = 6$

4. $\frac{60}{x} = 5$

5. $\frac{x}{8} = 9$

6. $\frac{121}{x} = 11$

7. $\frac{72}{x} + 8 = 14$

8. $-10 - \frac{100}{x} = -20$

9. $\frac{17}{x} = 17$

10. $\frac{x}{39} = 8$

11. $\frac{21}{x} = 10.5$

12. $\frac{1}{2} - \frac{9}{x} = -2\frac{1}{2}$

13. David has a bucket of 1026 plastic building blocks. He was told that there are equal amounts of 18 different shapes in the bucket. Solve for x in the equation below to find how out many of pieces of each shape there are in the bucket.

$$\frac{1026}{x} = 18$$

Continued…

14. Dr. Grayson has a beaker with 19.2 fluid ounces of a lifesaving chemicals in it. He asked Jessica to bring him enough test tubes to hold all the chemicals. Each test tube can hold .32 fluid ounces of liquid. Solve for x in the equation below to find out how many test tubes Jessica should bring to Dr. Grayson?

$$.32x = 19.2 \, fl.\, oz.$$

15. Asia is a Gymnast at the Olympic Semi-Finals. She must receive 100 points to make it into the finals. She has already scored 38.9 points, and there are six more events left. Solve for x in the equation below to find out how many points Asia needs to earn in each event to make it to the Olympics. Round your answer to the nearest tenth.

$$6x + 38.9 = 100$$

Name_____ Date _____

Volume 3 Lesson 6 Supplemental Worksheet

Solve for x in terms of y. Your answers will be x = something.

1. $y + x = 57$
2. $x + 9 = y$
3. $x + 10 = y$

4. $y + x = 18$
5. $x - 43 = y$
6. $y + x = -33$

7. $xy = 28$
8. $\frac{y}{x} = 16$
9. $\frac{x}{y} = 77$

Solve for Y in terms of x. Your answers will be y = something.

10. $\frac{21}{y} = x$
11. $\frac{x}{y} = 122$
12. $\frac{35}{y} = x$

13. $14.9y = x$
14. $y + 47 = x$
15. $29y = x$

16. $-\frac{3}{32}y = x$
17. $-17 + y = x$
18. $y - 600 = x$

Name _____ Date _____

Volume 3 Lesson 7a Supplemental Worksheet

Reduce the following ratios.

1. 4:24 _____   2. 6:36 _____   3. 5:25 _____

4. 7:21 _____   5. 10:100 _____   6. $\frac{8}{64}$ _____

7. To make concrete you add 3 shovelfuls of sand to one shovelful of cement and then add water. What is the ratio of sand to cement? _____

8. Mick is painting a car. The paint is to be mixed with another chemical, called a hardener, before using it. The ratio of paint to hardener is 8:1. He poured 16 ounces of paint in the mixer. How much hardener should he add? _____

9. Epoxy is sold in two separate containers. When you are ready to use it, you squeeze the two containers at the same time to get equal amounts. What is the ratio of epoxy part A to part B? _____

10. Amber is in charge of ordering the food for a wedding reception. She expects each guest will eat two dinner rolls and drink three beverages.

   a). What is the ratio of rolls to guest? _____

   b). What is the ratio of drinks to guest? _____

   c). She is planning for 90 guests. How many rolls should she order? _____

Continued…

11. In a classroom, there are 24 students and one teacher.

    a). What is the ratio of students to teachers? _____

    b). What is the ratio of teachers to students? _____

12. I'm going to make some pancakes for breakfast. The ratio of powdered pancake mix to water is 1.5:1. I poured 3 cups of powdered mix in a bowl. How much water should I add?

_____

13 Luke is a Blacksmith. He is building a suit of armor by heating up metal and then pounding it into shape with a hammer. He makes suits in three different sizes. Each time he makes a suit, he keeps the ratio of torso to legs at 1:1.618 so it fits the average person. The last metal torso he created measured two feet tall. What length should he make the legs? _____

14. Cora is out venturing with the scouts. It's an overnight hike, so one parent must volunteer to go for every four scouts. So far, 20 scouts have signed up to go.

    a). What is the ratio of parents to scouts? _____

    b). How many parents will be required to go with them? _____

15. On the other side of the mountain, Calvin is hiking with the Boy Scouts. The Scoutmaster warns the boys that they will need 8 ounces of water for every hour they are on the hike.

    a). What is the ratio of water to hours? _____

    b). How much water will Calvin need for a 2-day trip? _____

Name _____ Date _____

Volume 3 Lesson 7b Supplemental Worksheet

1. A classroom has 14 students and one teacher.
    What is the ratio of Students to Teachers? _____
    What is the ratio of Teachers to Students? _____

2. A ranch has seven horses. Last week they ate through 14 bales of hay.
    What is the ratio of hay to horse? _____

3. A baseball coach is planning a pizza party for his team. There are 16 team
    members. In the past, the ratio of pizza slices per player was 4:1. If each
    pizza has 8 slices, how many whole pizzas should he order for the team?
    _____

4. The directions on a package of rice calls for 1 ½ cups of water to 1 cup of
    rice. Write a ratio to show how much water you should use for 2 cups of
    rice? _____

5. The veterinarian said to use 3 ml of flea drops for every pound the cat
    weighs. What is the ratio of flea drops per pound? _____

    How many milliliters should be applied to an eight-pound cat? _____

6. To make French toast, you use two eggs and three ounces of milk. What is
    the ratio of eggs to milk? _____

    How much milk should you mix if six eggs are used? _____

7. There were 21,000 people at the concert. Of those who attended, 14,000
    were boys. What is the ratio of boys to girls at the concerts? Be sure to
    reduce your answer. _____

Name _____ Date _____

Volume 3 Lesson 8a Supplemental Worksheet

Cross multiply and then solve for x.

1. $\dfrac{x}{100} = \dfrac{5}{50}$

2. $\dfrac{24}{72} = \dfrac{9}{x}$

3. $\dfrac{15}{100} = \dfrac{x}{20}$

4. $\dfrac{5}{x} = \dfrac{6}{24}$

5. $\dfrac{1}{1.23} = \dfrac{55}{x}$

6. $\dfrac{1}{2.6} = \dfrac{x}{23.4}$

7. $\dfrac{1}{3} = \dfrac{x}{60}$

8. $\dfrac{1}{1.84} = \dfrac{x}{1,700}$ Round to the nearest hundredth.

9. Today, one Canadian dollar is worth 74 cents in America. Aurelia, a famous barrel racer, wants to purchase a horse in Canada. The price is $5,500 in Canadian money. How much will that cost in America. Use the proportions below to solve.

$$\dfrac{Canadian\ \$}{American\ \$} = \dfrac{Candian\ price}{American\ price} \qquad \dfrac{1}{.74} = \dfrac{5,500}{x}$$

Name _____ Date _____

Volume 3 Lesson 8b Supplemental Worksheet

Read each problem below. Fill in the blank proportions to create an equation and then solve for x to answer each problem.

1. There is a guitar for sale online. The price is 800 Euros (European money). How much is that in U.S. dollars? One Euro is equal to $1.14 in the United States. That is the exchange rate.

— = — =

2. Daniel has 2400 Euros. How much is that in U.S. dollars? Use the exchange rate from problem number 1.

— = — =

3. Melanie has $300 U.S. Dollars. How much is that in Euros? Round your answer to a whole number.

— = — =

4. As of right now, one U.S. dollar is worth $1.33 in Canada. If a book costs $45 in the United States, how much will a Canadian have to pay for it?

— = — =

Volume 3 Lesson 8a Supplemental Worksheet page 2

5. A robot walked 27,175 feet. How many miles did the robot walk? One mile is equal to 5,280 feet. Round your answer to the nearest one-hundredth.

— = — =

6. A car can drive 32 miles on just one gallon of gas. How many gallons will it take to drive 578 miles? Round your answer to the nearest one-hundredth.

— = — =

7. Today, an ounce of gold is worth $1,290.00. I have a gold bar that weighs 50 ounces. How much is it worth in dollars?

— = — =

8. How many weeks are there in 784 days?

— = — =

9. Daniel has built a supercomputer. It has 1.2 Terabytes of disc space. One Terabyte is equal to 1024 Gigabytes. How many gigabytes does the supercomputer have?

— = — =

Volume 3 Lesson 8a Supplemental Worksheet Page 3

10. A boat is cruising along at 30 knots per hour. How many miles per hour is that? One knot is equal to 1.15078 miles.

— = — =

11. How many fluid ounces are equal to 200 cc's (cubic centimeters) of water? One cc is equal to .033814 ounces

— = — =

12. There are four pints in one-half gallon. How many gallons is 36 pints?

— = — =

Name _____ Date _____

Volume 3 Lesson 9 Supplemental Worksheet

Solve the exponents.

$4^2 = $ _____

$2^2 = $ _____

$3^2 = $ _____

$5^2 = $ _____

$8^2 = $ _____

$9^2 = $ _____

$6^2 = $ _____

$7^2 = $ _____

$10^2 = $ _____

Solve the exponents first, then solve the math.

$5^2 + 2^2 = $ $4^2 + 3^2 = $ $10^2 + 6^2 = $ $7^2 + 8^2 = $

$12^2 - 11^2 = $ $9^2 - 5^2 = $ $8^2 - 2^2 = $ $20^2 + 10^2 = $

$2^2 \times 3^2 = $ $3^2 \times 4^2 = $ $10^2 \times 2^2 = $ $4^2 \times 9^2 = $

Name _____ Date _____

Volume 3 Lesson 10 Supplemental Worksheet

Solve the following problems. Be sure to check the operation being used, each problem is different.

1. $6^3 + 5^5 =$

2. $3^3 - 2^3 =$

3. $4^2 \times 3^2 =$

4. $8^2 \div 2^3 =$

5. $10^2 - 4^3 =$

6. $3^4 + 2^4 =$

7. $5^2 \times 2^2 =$

8. $9^2 \div 3^2 =$

9. $\frac{1}{2}^2 + \frac{1}{8}^2 =$

Solve the following.

10. Six squared plus three cubed equals? _____

11. Three to the fourth power equals? _____

12. Five to the sixth power times two squared equals? _____

Name _____ Date _____

Volume 3 Lesson 11 Supplemental Worksheet

Fill in the blanks, so each sentence make sense.

1. $4 \times 4 =$ _____. Another way to write 4×4 is _____^{2}.

2. $\sqrt{16} =$ _____ and $4^2 =$ _____.

3. $8 \times 8 =$ _____ and the square root of _____ is 8.

4. $\sqrt{49} =$ _____ and _____ x _____ = 49.

5. $9^2 =$ _____ and the $\sqrt{81} =$ _____.

6. $\sqrt{x} = 6$ that means $x =$ _____ because $6 \times 6 =$ _____.

7. $\sqrt{9} = x$ that means $x =$ _____ because _____ × _____ = 9.

8. $5^2 =$ _____, and $5 \times 5 =$ _____, so the square root of _____ = 5.

9. $2^2 =$ _____ and $2 \times 2 =$ _____, so the square root of _____ = 2.

10. $x^2 = 100$, and $x \cdot x = 100$, so the square root of 100 = _____.

Do the math.

11. $\sqrt{64} + 2 =$

12. $\sqrt{49} + \sqrt{25} =$

13. $\sqrt{100} + 10^2 =$

14. $\left(\sqrt{16}\right)^2 =$

15. $3^2 + 3^3 + \sqrt{81} =$

16. $\sqrt{36} - \sqrt{16} =$