

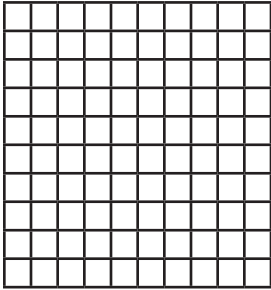
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Supplement to Activity 14 – Representing Fractions and Percents Activity

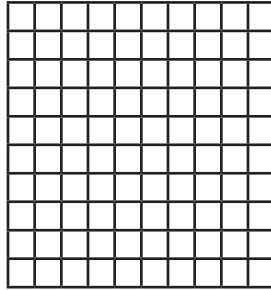
Represent each fraction or percent using a 10 by 10 grid, a number line, or a strip diagram, as indicated.

*Hint: In some cases, you may need to first choose a scale and add scale markings to the number line. You may also need to first divide the rectangle into equal parts (e.g., thirds, fourths, tenths) to create the strip diagram.*

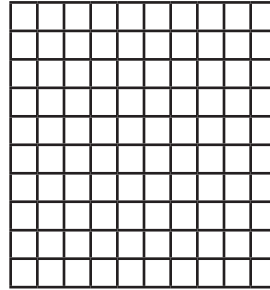
1.  $\frac{2}{3}$



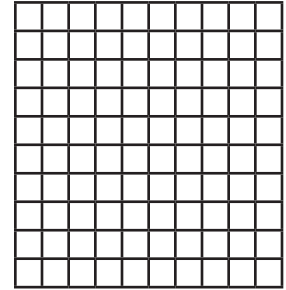
2.  $33\frac{1}{3}\%$



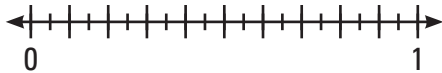
3.  $\frac{1}{4}$



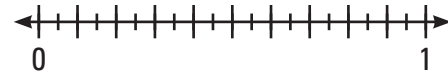
4. 90%



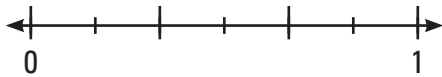
5.  $\frac{3}{10}$



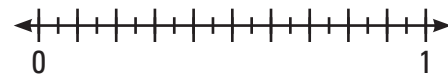
6.  $\frac{3}{4}$



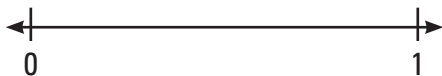
7.  $66\frac{2}{3}\%$



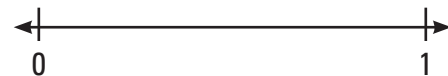
8. 20%



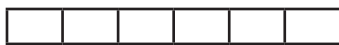
9. 25%



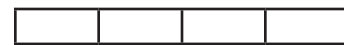
10.  $\frac{3}{5}$



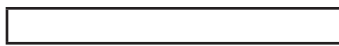
11.  $33\frac{1}{3}\%$



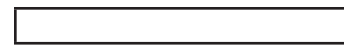
12. 75%



13.  $\frac{7}{10}$



14.  $\frac{5}{6}$



15. 30%



16.  $\frac{2}{3}$



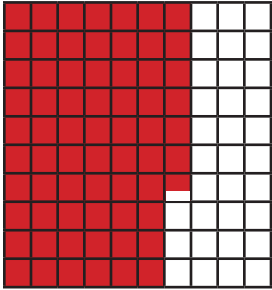
## Answer Key

### Supplement to Activity 14 – Representing Fractions and Percents Activity

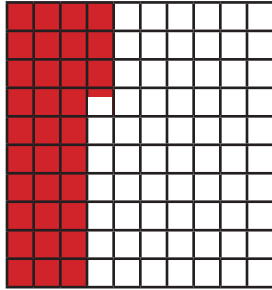
Represent each fraction or percent using a 10 by 10 grid, a number line, or a strip diagram, as indicated.

*Hint: In some cases, you may need to first choose a scale and add scale markings to the number line. You may also need to first divide the rectangle into equal parts (e.g., thirds, fourths, tenths) to create the strip diagram.*

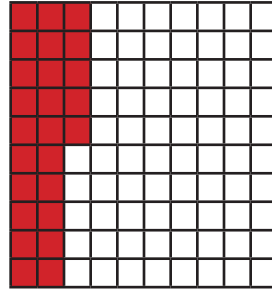
1.  $\frac{2}{3}$



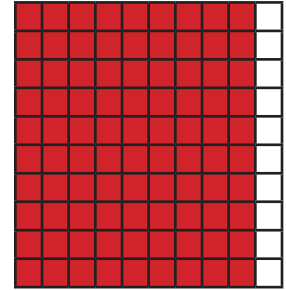
2.  $33\frac{1}{3}\%$



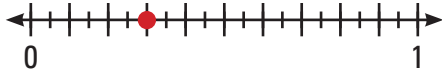
3.  $\frac{1}{4}$



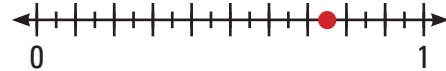
4. 90%



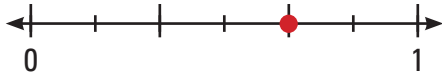
5.  $\frac{3}{10}$



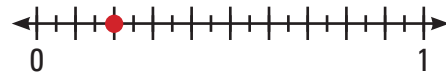
6.  $\frac{3}{4}$



7.  $66\frac{2}{3}\%$



8. 20%



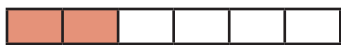
9. 25%



10.  $\frac{3}{5}$



11.  $33\frac{1}{3}\%$



12. 75%



13.  $\frac{7}{10}$



14.  $\frac{5}{6}$



15. 30%



16.  $\frac{2}{3}$



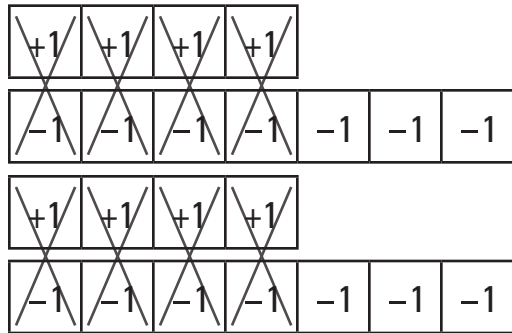
Supplement to Activity 22 – Equivalent Expression Determination

Cut out each of the pieces below. Use the pieces to model each of the following expressions and determine whether the two expressions are equivalent. *Hints: Cancel like values of equal magnitude and opposite sign within the same expression (same side of equal sign). The same value can be added or removed from both sides of the equation. An example has been given for you.*

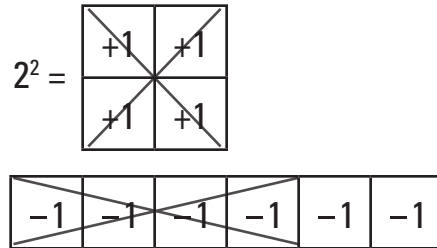
+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1
-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
-x	-x	-x	-x	-x	-x	-x	-x	-x	-x	-x	-x	-x	-x	-x	-x	-x	-x	-x	-x

**Example:** Is  $2(4 - 7) = 2^2 - 6$  a true statement?

$2(4 - 7)$



$2^2 - 6$



-6 is not equal to -2, so  $2(4 - 7) = 2^2 - 6$  is a false statement. The expressions are not equal.

1. Is the expression  $6x - 4x$  equivalent to  $2(2x) + 2(-x)$ ?

2. Is the expression  $8 \div 2$  equivalent to  $2(3)$ ?

3. Is the expression  $3(1 - 2)$  equivalent to  $6 - 9 + 3x + 3(-x)$ ?

## Answer Key

### Supplement to Activity 22 – Equivalent Expression Determination

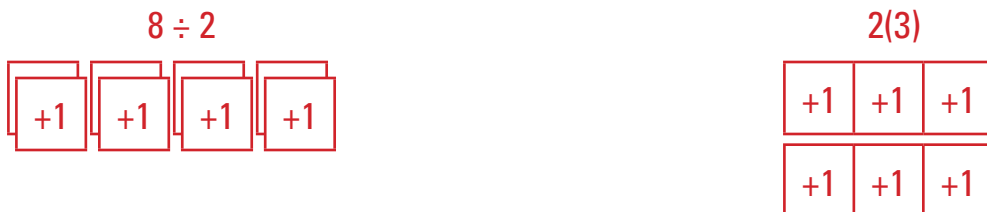
A completed concrete model is shown next to each problem below, along with the answers.

1. Is the expression  $6x - 4x$  equivalent to  $2(2x) + 2(-x)$ ?



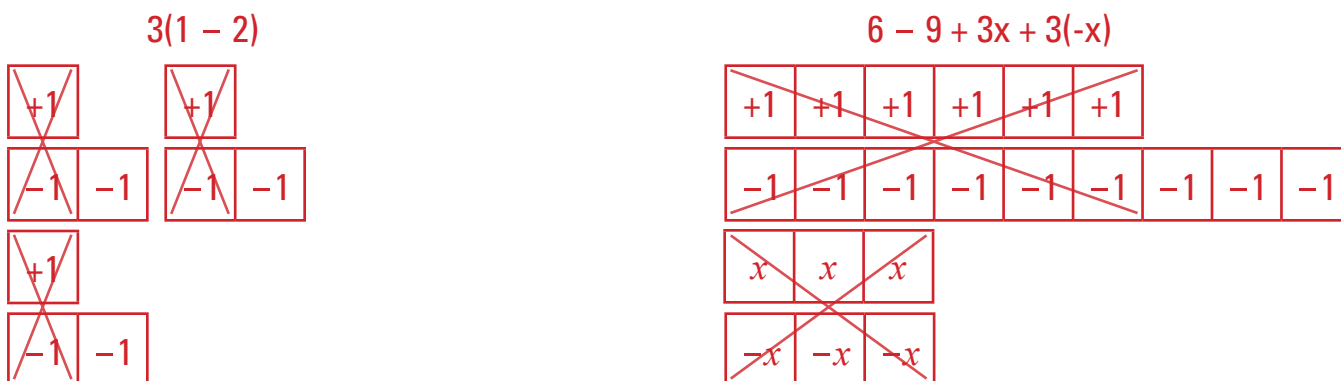
$2x$  equals  $2x$ , so the expressions are equivalent.

2. Is the expression  $8 \div 2$  equivalent to  $2(3)$ ?



$4$  is not equal to  $6$ , so the expressions are not equivalent.

3. Is the expression  $3(1 - 2)$  equivalent to  $6 - 9 + 3x + 3(-x)$ ?



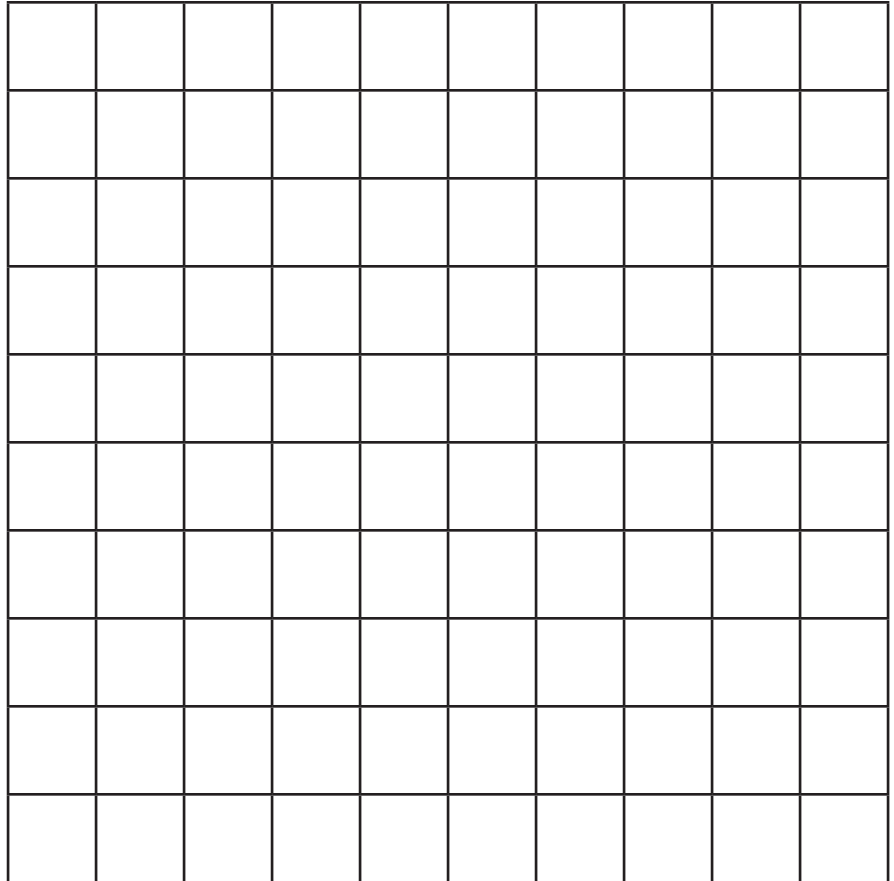
$-3$  is equal to  $-3$ , so the expressions are equivalent.

Supplement to Activity 39 – Percent Models

Cut out each square in the grid at right. Use the 100 squares and colored pens, pencils, or crayons to model and solve the percent problems as directed in the instruction boxes below.

To avoid confusion, label each square for the problem you are solving with percent values or quantities that each represents. Coloring squares that represent the same thing the same color can help you build concrete models, too.

You may build a different type of concrete model than the one described in the instructions. If you arrive at a different answer, discuss your model with your teacher to determine why it did not represent the situation correctly.



1. 25% of Ed's pens are blue. Ed has 5 blue pens.  
How many total pens does Ed have?

2. 10 pumas are 5% of the puma population.  
How many pumas are in the population?

3. Kelly has 50 tennis balls. 20% are green.  
How many are green?

4. The trail is 1,600 meters long. Jay ran 40% of it.  
How many meters did Jay run?

5. Alexis has 25 paper clips. 11 of them are red.  
What percent of Alexis' paper clips are red?

6. Tony has \$5.00, including \$1.50 in quarters.  
What percent of Tony's money is in quarters?

**Build a concrete model to find the whole:**

1. Use one square to represent the given percent. Write its percent on it. Arrange enough squares to sum to exactly 100%. If needed, fold the last square (in half, in thirds, etc.).
2. Use a different color to represent the "part" quantity that corresponds to the given percent. Write the quantity on the first square. Arrange an equal number of squares as Step 1.
3. Sum the total quantity (all the "part" squares from Step 2).

**Build a concrete model to find the part:**

1. Arrange all squares into a 10 by 10 grid, representing both 100% and the whole amount. Determine what quantity is represented by 1 square or by some number of squares such that all 100 squares represent the whole amount (e.g., if 100 squares = 250, then 1 square = 2.5; if 100 squares = 25, then 4 squares = 1).
2. Identify the squares in the 10 by 10 grid for the given percent.
3. Use Step 1 to relate these squares to the "part" quantity (sum).

**Build a concrete model to find the percent:**

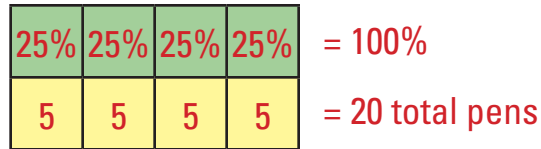
1. Arrange all squares into a 10 by 10 grid, representing both 100% and the whole amount. Determine what quantity is represented by 1 square or by some number of squares such that all 100 squares represent the whole amount.
2. Use the square-to-amount ratio found in Step 1 to identify the squares in the 10 by 10 grid for the given "part."
3. Count the identified squares to determine the percent.

## Answer Key

### Supplement to Activity 39 – Percent Models

A completed concrete model is shown next to each problem below, along with the answers.

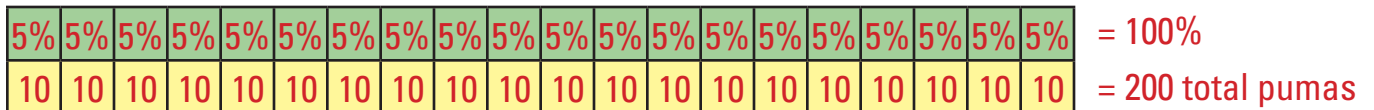
1. 25% of Ed's pens are blue. Ed has 5 blue pens. How many total pens does Ed have?



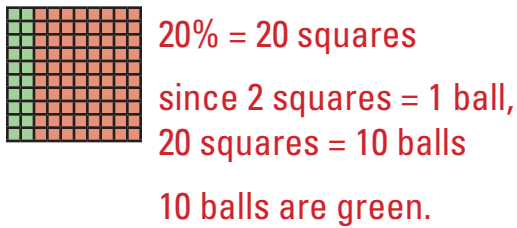
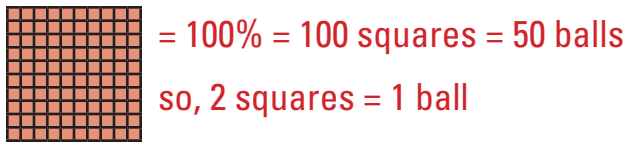
**20 total pens**

2. 10 pumas are 5% of the puma population. How many pumas are in the population?

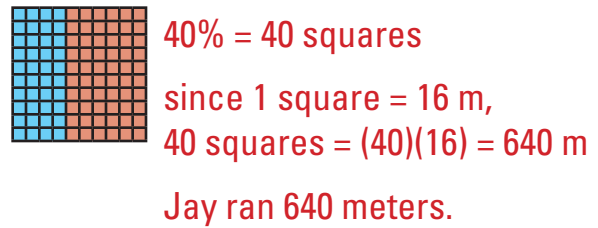
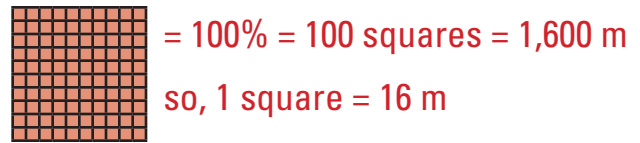
**200 total pumas**



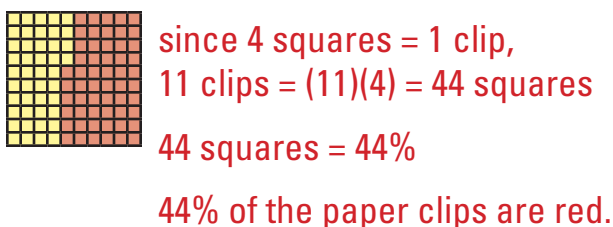
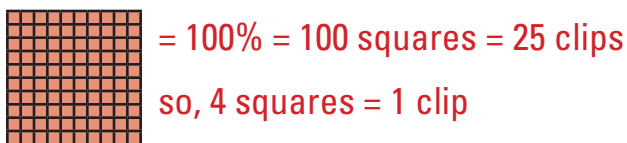
3. Kelly has 50 tennis balls. 20% are green. How many are green?



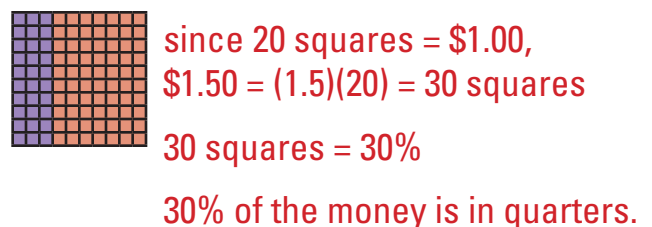
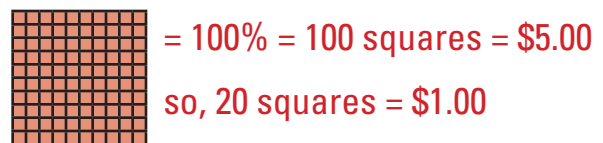
4. The trail is 1,600 meters long. Jay ran 40% of it. How many meters did Jay run?



5. Alexis has 25 paper clips. 11 of them are red. What percent of Alexis' paper clips are red?



6. Tony has \$5.00, including \$1.50 in quarters. What percent of Tony's money is in quarters?







## Answer Key

### Supplement to Activity 85 – Credit Report Match-Up

Read the scenarios below. Answer the question that follows. Reference at least two examples from the scenarios in your explanation.

#### Scenario A

Molly lives in an apartment, where her name is on the lease agreement. She is a cashier at a nearby grocery store. Molly gets a credit card in her own name and uses it for emergencies and online purchases. Each month, she is careful to pay her apartment rent, her utility bill, her phone bill, and her credit card bill on time, resulting in a high credit score.

Molly makes a plan to earn more money as a welder, but first she must pay for welder training and certifications. She applies for a \$15,000 loan at her bank. Due to her high credit score, Molly is approved for the loan at the lowest interest rate the bank can offer.

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#### Scenario B

Craig makes over \$100,000 each year by selling real estate, such as homes. He leases a new truck with leather seats and rents a condo on the golf course, both in his name. He has two credit cards that he uses for most of his expenses. Craig's monthly income goes up and down, depending on how many deals he closes during the month. When Craig doesn't make enough money to cover his bills, he often pays late. The late payments result in extra fees, but sometimes Craig talks the companies into reducing or eliminating the fees. The late payments are still reported to a credit bureau, however, so Craig has a low credit score.

One day, Craig reads in the paper that a large employer in the city where he sells homes is closing down their local operations. 1,400 employees will lose their jobs or be transferred to other locations. Suddenly, Craig can't seem to sell any homes, and his monthly income looks like it may be near zero for some time. He makes a plan to move to another state where the real estate market is still strong and where other sales jobs are also available, but he needs \$10,000 for moving and living expenses until he can get his next job. He applies for a loan at a bank and is approved for only \$2,000 at a high interest rate. He can get another credit card with an \$8,000 limit, but the interest rate is even higher at double the bank loan's interest rate.

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#### Scenario C

Reggie and Alicia live in a house, own their cars, have two credit cards, and, other than their home mortgage, have no debt. The mortgage and the credit cards are in Reggie's name, as are the phone and utility bills. Each month, Alicia or Reggie pays the bills on time out of their joint checking account.

One day, Alicia is shocked and saddened to learn that Reggie has had a fatal car wreck. Now alone, she makes a plan to buy and run a small business. She requires a \$145,000 loan. The bank will not approve the loan for the full amount, however, due to Alicia's lack of credit history and a resulting low credit score.

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1. Explain why it is important to establish a positive credit history.

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Answers will vary, but may include that low credit scores result in higher borrowing costs and less borrowing power, which can limit the options borrowers have to deal with life's challenges or take advantage of opportunities.

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Name \_\_\_\_\_ Date \_\_\_\_\_

### Supplement to Activity 89 – College Payment Methods

Use technology to research work-study programs at two colleges or universities. Describe the programs with as many details as you can find in the space provided below.

**University #1:** \_\_\_\_\_ **'s Work Study Program(s)**

**University #2:** \_\_\_\_\_ **'s Work Study Program(s)**

.....  
**1.** Explain work-study programs, which are offered by colleges and universities to their students.

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## Answer Key

### Supplement to Activity 89 – College Payment Methods

Use technology to research work-study programs at two colleges or universities. Describe the programs with as many details as you can find in the space provided below.

University #1: \_\_\_\_\_'s Work Study Program(s)

Answers will vary.

University #2: \_\_\_\_\_'s Work Study Program(s)

Answers will vary.

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1. Explain work-study programs, which are offered by colleges and universities to their students.

Answers will vary, but may include that work-study programs are a way to help students pay for college by taking certain jobs, many of which are on-campus and convenient for students. Some conveniences include that the work hours can be arranged to not interfere with classes and that often the jobs do not require that students have a car. For federally subsidized work-study programs, financial need is a requirement. Students are paid directly by the university, which recovers funds from both the employer (if it is an outside employer) and, to a greater extent, the federal government program.