Unit 6, Lesson 5: A New Way to Interpret a over b

1. Select **all** the expressions that equal $\frac{3.15}{0.45}$.

    A. $(3.15) \cdot (0.45)$

    B. $(3.15) \div (0.45)$

    C. $(3.15) \cdot \frac{1}{0.45}$

    D. $(3.15) \div \frac{45}{100}$

    E. $(3.15) \cdot \frac{100}{45}$

    F. $\frac{0.45}{3.15}$

2. Which expressions are solutions to the equation $\frac{3}{4}x = 15$? Select **all** that apply.

    A. $\frac{15}{\frac{3}{4}}$

    B. $\frac{15}{\frac{4}{3}}$

    C. $\frac{4}{3} \cdot 15$

    D. $\frac{3}{4} \cdot 15$

    E. $15 \div \frac{3}{4}$

3. Solve each equation.

    a. $4x = 32$ b. $4 = 32x$ c. $10x = 26$ d. $26 = 100x$

4. For each equation, write a story problem represented by the equation. For each equation, state what quantity x represents. If you get stuck, draw a diagram.

$\frac{3}{4} + x = 2$ $1.5x = 6$

5. Write as many mathematical expressions or equations as you can about the image. Include a fraction, a decimal number, or a percentage in each.

FUNDRAISER

OUR GOAL:

$250,000

- $250,000
- $200,000
- $150,000
- $100,000
- $50,000

(from Unit 3, Lesson 13)

6. In a lilac paint mixture, 40% of the mixture is white paint, 20% is blue, and the rest is red. There are 4 cups of blue paint used in a batch of lilac paint.

    a. How many cups of white paint are used?

    b. How many cups of red paint are used?

    c. How many cups of lilac paint will this batch yield?

If you get stuck, consider using a tape diagram.

(from Unit 3, Lesson 12)

7. Triangle P has a base of 12 inches and a corresponding height of 8 inches. Triangle Q has a base of 15 inches and a corresponding height of 6.5 inches. Which triangle has a greater area? Show your reasoning.

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Unit 6, Lesson 6: Write Expressions Where Letters Stand for Numbers

1. Instructions for a craft project say that the length of a piece of red ribbon should be 7 inches less than the length of a piece of blue ribbon.

    a. How long is the red ribbon if the length of the blue ribbon is:

    10 inches?   27 inches? x inches?

    b. How long is the blue ribbon if the red ribbon is 12 inches?

2. Tyler has 3 times as many books as Mai.

    a. How many books does Mai have if Tyler has:

    15 books?   21 books? x books?

    b. Tyler has 18 books. How many books does Mai have?

3. A bottle holds 24 ounces of water. It has x ounces of water in it.

    a. What does $24 - x$ represent in this situation?

    b. Write a question about this situation that has $24 - x$ for the answer.

4. Write an equation represented by this tape diagram that uses each of the following operations.

9	9	9

27

a. addition

b. subtraction

c. multiplication

d. division

(from Unit 6, Lesson 1)

5. Select **all** the equations that describe each situation and then find the solution.

a. Han's house is 450 meters from school. Lin's house is 135 meters closer to school. How far is Lin's house from school?

$z = 450 + 135$ $z = 450 - 135$ $z - 135 = 450$ $z + 135 = 450$

b. Tyler's playlist has 36 songs. Noah's playlist has one quarter as many songs as Tyler's playlist. How many songs are on Noah's playlist?

$w = 4 \cdot 36$ $w = 36 \div 4$ $4w = 36$ $\frac{w}{4} = 36$

(from Unit 6, Lesson 4)

6. You had $50. You spent 10% of the money on clothes, 20% on games, and the rest on books. How much money was spent on books?

Unit 6, Lesson 7: Revisit Percentages

1. A crew has paved $\frac{3}{4}$ of a mile of road. If they have completed 50% of the work, how long is the road they are paving?

2. 40% of x is 35.

   a. Write an equation that shows the relationship of 40%, x, and 35.

   b. Use your equation to find x. Show your reasoning.

3. Priya has completed 9 exam questions. This is 60% of the questions on the exam.

   a. Write an equation representing this situation. Explain the meaning of any variables you use.

   b. How many questions are on the exam? Show your reasoning.

4. Answer each question. Show your reasoning.

   a. 20% of a is 11. What is a?

   c. 80% of c is 20. What is c?

   b. 75% of b is 12. What is b?

   d. 200% of d is 18. What is d?

NAME   DATE   PERIOD

5. For the equation $2n - 3 = 7$

    a. What is the variable?

    b. What is the coefficient of the variable?

    c. Which of these is the solution to the equation? 2, 3, 5, 7, n

(from Unit 6, Lesson 2)

6. Which of these is a solution to the equation $\frac{1}{8} = \frac{2}{5} \cdot x$?

    A. $\frac{2}{40}$

    B. $\frac{5}{16}$

    C. $\frac{11}{40}$

    D. $\frac{17}{40}$

(from Unit 6, Lesson 2)

7. Find the quotients.

    a. $0.009 \div 0.001$

    b. $0.009 \div 0.002$

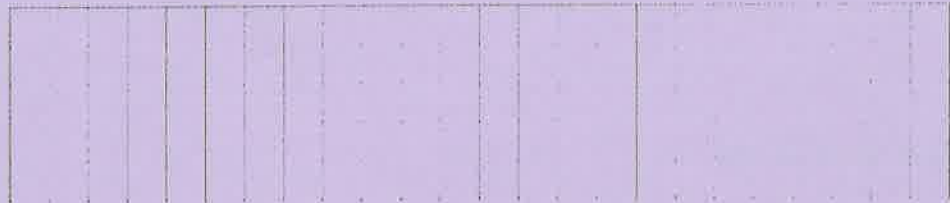   c. $0.0045 \div 0.001$

    d. $0.0045 \div 0.002$

(from Unit 5, Lesson 13)

Unit 6, Lesson 8: Equal and Equivalent

1. a. Draw a diagram of $x + 3$ and a diagram of $2x$ when x is 1.

    b. Draw a diagram of $x + 3$ and of $2x$ when x is 2.

    c. Draw a diagram of $x + 3$ and of $2x$ when x is 3.

    d. Draw a diagram of $x + 3$ and of $2x$ when x is 4.

    e. When are $x + 3$ and $2x$ equal? When are they not equal? Use your diagrams to explain.

2. a. Do $4x$ and $15 + x$ have the same value when x is 5?

    b. Are $4x$ and $15 + x$ equivalent expressions? Explain your reasoning.

3. a. Check that $2b + b$ and $3b$ have the same value when b is 1, 2, and 3.

    b. Do $2b + b$ and $3b$ have the same value for all values of b? Explain your reasoning.

    c. Are $2b + b$ and $3b$ equivalent expressions?

4. 80% of x is equal to 100.

    a. Write an equation that shows the relationship of 80%, x, and 100.

    b. Use your equation to find x.

    (from Unit 6, Lesson 7)

5. For each story problem, write an equation to represent the problem and then solve the equation. Be sure to explain the meaning of any variables you use.

    a. Jada's dog was $5\frac{1}{2}$ inches tall when it was a puppy. Now her dog is $14\frac{1}{2}$ inches taller than that. How tall is Jada's dog now?

    b. Lin picked $9\frac{3}{4}$ pounds of apples, which was 3 times the weight of the apples Andre picked. How many pounds of apples did Andre pick?