DIVISION 6.NS.3
DIVISION OF DECIMALS BY WHOLE NUMBERS

Purpose: To divide decimals by whole numbers

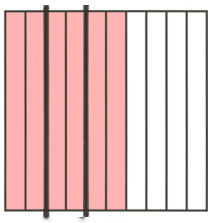
Materials: Decimal Squares, Blank Decimal Squares for Dividing Decimals by Whole Numbers (attached)

TEACHER MODELING/STUDENT COMMUNICATION

Activity 1 Dividing a Decimal by a Whole Number

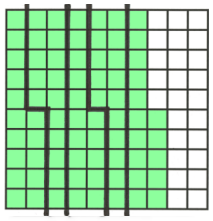
Decimal Squares

1. Find a red Decimal Square for .6 and imagine sharing the shaded amount equally among 3 people. Determine what part of a square each person will receive and write a division equation. (Each person receives .2 of a whole square; .6 ÷ 3 = .2) Note: Lines can be drawn on the Decimal Squares with water-base pens.



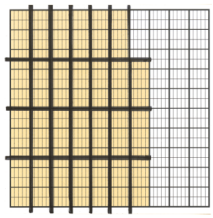
.6 ÷ 3 = .2

2. Find a green Decimal Square for .75 and imagine sharing the shaded part equally among 5 people. Find the part of a whole square each person will receive and write a division equation. (Each person receives .15 of a whole square; .75 ÷ 5 = .15)



.75 ÷ 5 = .15

3. Find the Decimal Square for .675 and imagine sharing the shaded amount equally among 27 people. Write a division equation for .675 ÷ 27 and explain your reasoning. (.675 ÷ 27 = .025 because if 675 shaded parts are divided into 27 equal groups, there will be 25 parts in each group.)

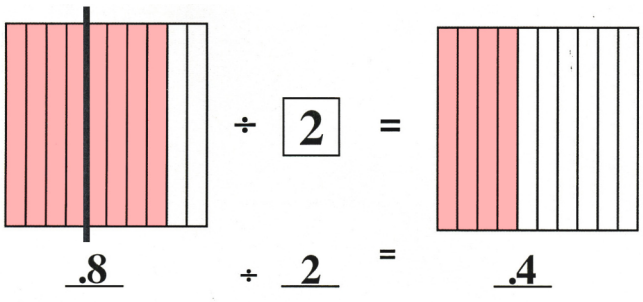


.675 ÷ 27 = .025

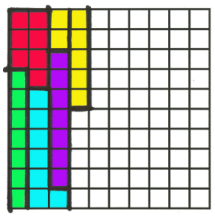
Activity 2 Modeling Division by Shading Blank Squares

Blank Decimal Squares for Dividing Decimals by Whole Numbers

1. Shade the first square in #1 on the activity sheet for .8, write the number 2 in the box next to the square, and imagine sharing the shaded amount equally between 2 people. How much will each person receive? (4 shaded parts) Shade the second square in #1 to show how much each person will receive and complete the division equation. (.8 ÷ 2 = .4).



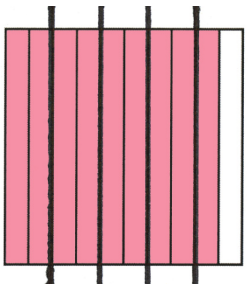
2. Shade the first square in #2 for .35, write the number 5 in the box next to the square, and imagine sharing the shaded amount of this square equally between 5 people. Draw lines on the shaded amount to divide it into 5 equal parts, shade the second square in #2 for one of these parts, and complete the division equation beneath the squares. Repeat this activity using the squares in #3 for .45 ÷ 3.



.35 ÷ 5 = .07

3. Repeat this activity by shading the thousandths squares in #5 to compute the quotient .400 ÷ 8

4. Shade the tenths square in #4 on the activity sheet for .9 and imagine sharing the shaded amount equally between 4 people. How much would each person receive? Explain your reasoning.

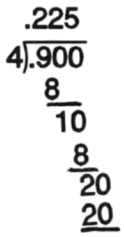


.9 ÷ 4 = .2 with a remainder of .1

One approach is to divide .9 by 4 and to obtain .2 with a remainder of .1, replace .1 by 100 thousandths, and divide 100 thousandths by 4 to obtain 25 thousandths with no remainder. So .9 ÷ 4 = .2 + .025 = .225

A second approach is to divide in three steps. **Step 1**: .9 ÷ 4 = .2 with a remainder of .1. **Step 2**: Replace 1 tenth by 10 hundredths and divide by 4 to obtain 2 hundredths with a remainder of 2 hundredths. **Step 3**: Replace 2 hundredths by 20 thousandths and divide by 4 to obtain 5 thousandths with no remainder. So, .9 ÷ 4 = .2 + .02 + .005 = .225.

Activity 3 Relating the Decimal Squares Model to Long Division



Review the three steps to compute .9 ÷ 4 = .225 in the second approach above. Each of these steps corresponds to a step in Long Division. **Step 1**: Divide 9 (tenths) by 4. **Step 2**: Divide 10 (hundredths) by 4. **Step 3**: Divide 20 (thousandths) by 4.

Activity 4 Summarizing to See Patterns and Relationships

In the preceding activities, whole numbers of shaded parts were divided by whole numbers and then decimal points were located in the quotients. Look at these examples and write a rule for dividing decimals by whole numbers. (**Divide as though dividing whole numbers. The answer or quotient should have the same number of decimal places as the number being divided, the dividend.)**

Game: In the SQUARES and DICE game, each player in turn selects a Decimal Square and rolls the die. The player divides the decimal for the square by the whole number from the die and rounds the results to the nearest tenth. The first player to score a total of 3 points or more wins the game.

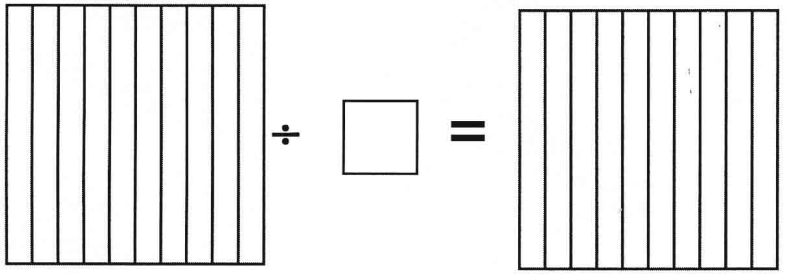
INDEPENDENT PRACTICE AND ASSESSMENT

Worksheets 6.NS.3 #25 and #26

Blank Decimal Squares for Dividing Decimals by Whole Numbers Name: _____ **Date:** _____.

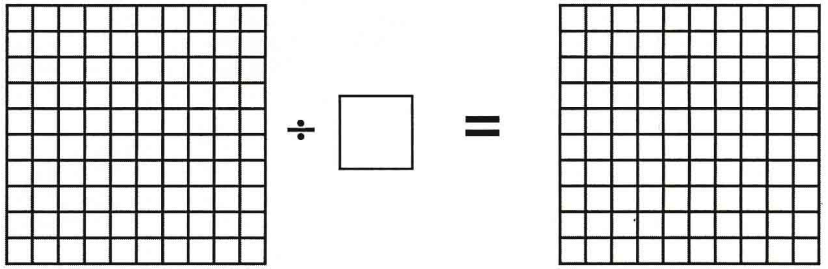
Shade a square for a decimal, write a number in the box for the divisor, shade a square for the quotient, and write an equation or for the result.

1.



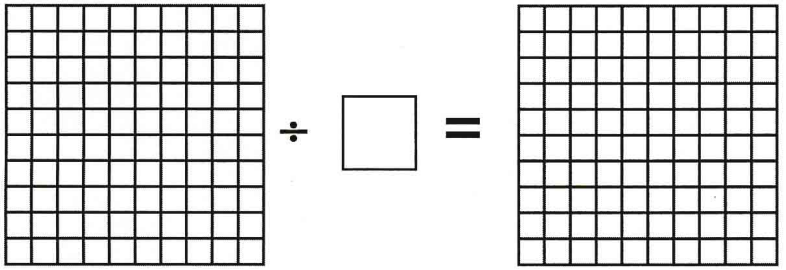
___ ÷ ___ = ___

2.



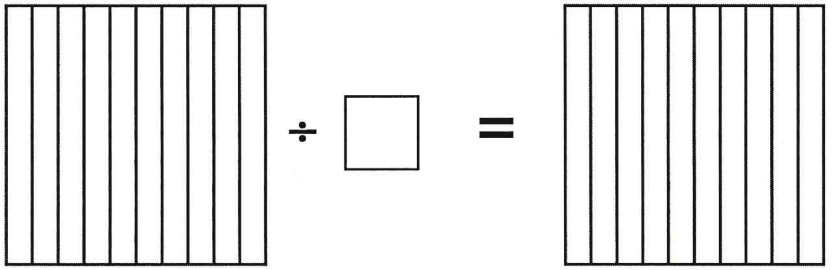
___ ÷ ___ = ___

3.



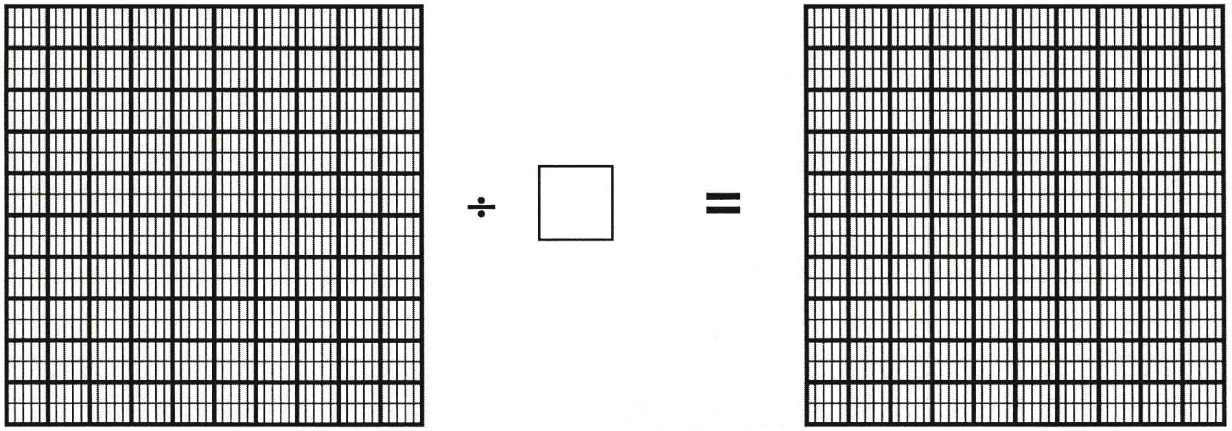
___ ÷ ___ = ___

4.



___ ÷ ___ = ___

5.



___ ÷ ___ = ___