

Reasoning and Problem Solving

Step 7: Decimals as Fractions

National Curriculum Objectives:

Mathematics Year 6: (6F6) [Associate a fraction with division and calculate decimal fraction equivalents \[for example, 0.375\] for a simple fraction \[for example, 3/8\]](#)

Differentiation:

Questions 1, 4 and 7 (Problem Solving)

Developing Use knowledge of decimals and fractions to find the digits represented by the symbols. Decimals presented as tenths and some require simplification into fifths or halves.

Expected Use knowledge of decimals and fractions to find the digits represented by the symbols. Decimals are presented as tenths and hundredths and most require simplification.

Greater Depth Use knowledge of decimals and fractions to find the digits represented by the symbols. Decimals are presented as tenths and hundredths and require simplification. Questions include mixed numbers.

Questions 2, 5 and 8 (Problem Solving)

Developing Use the digit cards to make the statement true. Decimals presented as tenths and some require simplification into fifths or halves.

Expected Use the digit cards to make the statements true. Decimals are presented as tenths and hundredths and most require simplification.

Greater Depth Use the digit cards to make the statements true. Decimals are presented as tenths and hundredths and require simplification. Questions include mixed numbers.

Questions 3, 6 and 9 (Reasoning)

Developing Identify whether a statement is correct and explain why. Decimals presented as tenths and some require simplification into fifths or halves.

Expected Identify whether a statement is correct and explain why. Decimals are presented as tenths and hundredths and most require simplification.

Greater Depth Identify whether a statement is correct and explain why. Decimals are presented as tenths and hundredths and require simplification. Questions include mixed numbers.

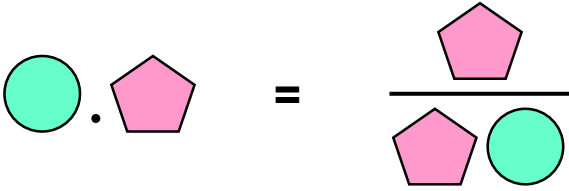
More [Year 6 Decimals](#) resources.

Did you like this resource? Don't forget to [review](#) it on our website.

Decimals as Fractions

1a. Find the digits represented by the symbols.

Clue: The pentagon is an odd number.



Are there other possibilities?

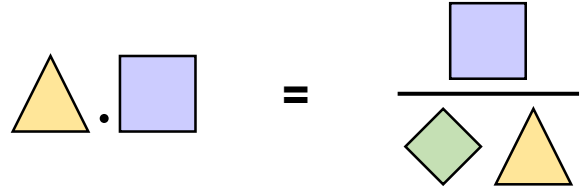


PS

Decimals as Fractions

1b. Find the digits represented by the symbols.

Clue: The square is an even number.



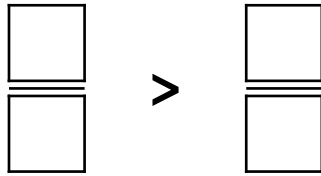
Are there other possibilities?



PS

2a. Use the digit cards to make the inequality statements true.

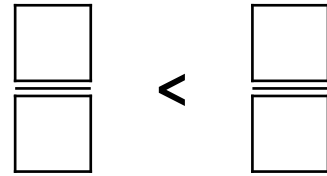
$$0.6 > 0.2$$



PS

2b. Use the digit cards to make the inequality statements true.

$$0.5 < 0.7$$



PS

3a. Leo says,



0.5 is less than $\frac{5}{10}$.

Is he correct? Prove it.



R

3b. Aisha says,



0.4 is greater than $\frac{5}{10}$.

Is she correct? Prove it.

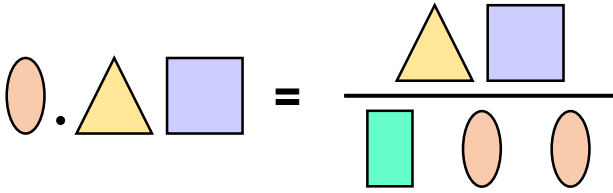


R

Decimals as Fractions

4a. Find the digits represented by the symbols.

Clue: The square is double the triangle.



Are there other possibilities?

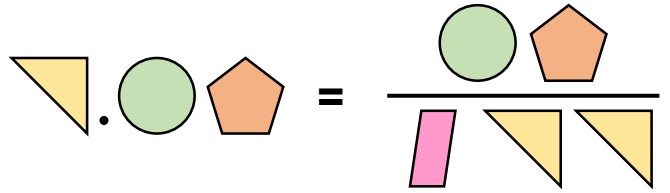


PS

Decimals as Fractions

4b. Find the digits represented by the symbols.

Clue: The circle is double the pentagon.



Are there other possibilities?



PS

5a. Use the digit cards to make the inequality statements true. You can use the cards more than once.

$$\square . \square > \square . \square$$

$$\begin{array}{c} \square \\ \hline \square \end{array} > \begin{array}{c} \square \\ \hline \square \end{array}$$



PS

5b. Use the digit cards to make the inequality statements true. You can use the cards more than once.

$$\square . \square < \square . \square$$

$$\begin{array}{c} \square \\ \hline \square \end{array} < \begin{array}{c} \square \\ \hline \square \end{array}$$



PS

6a. Paul says,



0.64 is less than $\frac{3}{5}$.

Is he correct? Prove it.



R

6b. Adele says,



0.80 is greater than $\frac{4}{5}$.

Is she correct? Prove it.



R

Decimals as Fractions

7a. Find the digits represented by the symbols.

Clue: The digit sum of the pentagon and the circle is 3.

$$\text{circle} \cdot \text{pentagon} \text{circle} = \text{circle} \frac{\text{triangle}}{\text{circle} \text{hexagon}}$$

Are there other possibilities?



PS

Decimals as Fractions

7b. Find the digits represented by the symbols.

Clue: The square and the rhombus add together to make a multiple of 3.

$$\text{square} \cdot \text{rhombus} = \text{square} \frac{\text{pentagon}}{\text{triangle}}$$

Are there other possibilities?



PS

8a. Use the digit cards to make the inequality statements true. You can use the cards more than once.

$$\square \cdot \square < \square \cdot \square$$

$$\frac{\square}{\square} < \frac{\square}{\square}$$

1 48 2 3 12 25



PS

8b. Use the digit cards to make the inequality statements true. You can use the cards more than once.

$$\square \cdot \square > \square \cdot \square$$

$$\frac{\square}{\square} > \frac{\square}{\square}$$

35 20 7 45 1 9



PS

9a. Saif and Katie are measuring sunflowers.

Saif's sunflower is 1.12m tall. Katie's sunflower is $1\frac{1}{5}$ m tall.



My sunflower is taller than Katie's.

Is he correct? Prove it.



R

9b. Quinn and Alan are measuring their garden paths.

Alan's garden path is 2.66m long. Quinn's garden path is $2\frac{4}{5}$ m long.



My garden path is longer than Alan's.

Is she correct? Prove it.



R

Reasoning and Problem Solving Decimals as Fractions

Developing

1a. circle = 0; pentagon = 1. No other possibilities.

2a. $\frac{3}{5} > \frac{1}{5}$

3a. Leo is incorrect. 0.5 and $\frac{5}{10}$ are equal.

Expected

4a. oval = 0; triangle = 2, square = 4, rectangle = 1. Other possibilities for the triangle and square: 3 and 6 or 4 and 8.

5a. $0.75 > 0.4 = \frac{3}{4} > \frac{2}{5}$

6a. Paul is incorrect. 0.64 has 6 tenths and 4 hundredths. $\frac{3}{5}$ is equivalent to $\frac{6}{10}$ which has 6 tenths and 0 hundredths. This makes 0.64 greater than $\frac{3}{5}$.

Greater Depth

7a. circle = 2; pentagon = 1; triangle = 3; hexagon = 5. No other possibilities.

8a. $1.48 < 2.12 = 1\frac{12}{25} < 2\frac{3}{25}$

9a. Saif is incorrect, 1.12 is equivalent to $1\frac{3}{25}$ which is less than $1\frac{1}{5}$.

Reasoning and Problem Solving Decimals as Fractions

Developing

1b. triangle = 0; square = 2; rhombus = 1.

Other possibilities for square: 4, 6, 8.

2b. $\frac{1}{2} < \frac{7}{10}$

3b. Aisha is incorrect. $\frac{5}{10} = 0.5$ which has 5 in the tenths column, whereas 0.4 has 4 tenths. This makes $\frac{5}{10}$ greater than 0.4.

Expected

4b. triangle = 0, circle = 4, pentagon = 2, parallelogram = 1. Other possibilities for circle and pentagon: 6 and 3, 8 and 4.

5b. $0.4 < 0.5 = \frac{2}{5} < \frac{1}{2}$

6b. Adele is incorrect. 0.8 is equal to $\frac{4}{5}$.

Greater Depth

7b. square = 1; rhombus = 4; pentagon = 2; triangle = 5, or square = 1; rhombus = 8; pentagon = 4; triangle = 5

8b. $1.45 > 1.35 = 1\frac{9}{20} > 1\frac{7}{20}$

9b. Quinn is correct. 2.66 is equivalent to $2\frac{33}{50}$ which is less than $2\frac{4}{5}$.