

Reasoning and Problem Solving

Step 2: Equivalent FDP

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 \[for example, 3/8\]](#)

Mathematics Year 6: (6F11) [Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts](#)

Differentiation:

Questions 1, 4 and 7 (Reasoning)

Developing Explain why a statement is correct or incorrect. Using tenths, quarters and halves.

Expected Explain why a statement is correct or incorrect. Using fifths, eighths, tenths, hundredths, quarters and halves. Fractions may need to be simplified.

Greater Depth Explain why a statement is correct or incorrect. Using fifths, eighths, tenths, twentieths, quarters and halves. Fractions need to be simplified.

Questions 2, 5 and 8 (Problem Solving)

Developing State which is the largest value. Using tenths, quarters and halves.

Expected State which is the largest value. Using fifths, eighths, tenths, hundredths, quarters and halves. Fractions may need to be simplified.

Greater Depth State which is the largest value. Using fifths, eighths, tenths, twentieths, quarters and halves. Fractions need to be simplified.

Questions 3, 6 and 9 (Reasoning)

Developing Explain which statement is correct. Using tenths, quarters and halves.

Expected Explain which statement is correct. Using fifths, eighths, tenths, hundredths, quarters and halves. Fractions may need to be simplified.

Greater Depth Explain which statement is correct. Using fifths, eighths, tenths, twentieths, quarters and halves. Fractions need to be simplified.

More [Year 6 Percentages](#) resources.

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Equivalent FDP

1a. Maia says,



If I give 25% of my sweets to friends, there will be half, or 0.5 left.

Do you agree?

Prove it.



R

Equivalent FDP

1b. Frankie says,



If I give three tenths of my sweets to friends, there will be 70% or 0.7 left.

Do you agree?

Prove it.



R

2a. Kim ate 50% of her pizza.

Jane ate $\frac{7}{10}$ of her pizza.

Lucy ate 0.6 of her pizza.

Who ate the most of their pizza?

Show your working.



PS

2b. Nile ate 75% of his pizza.

Max ate $\frac{3}{4}$ of his pizza.

James ate 0.7 of his pizza.

Who ate the most of their pizza?

Show your working.

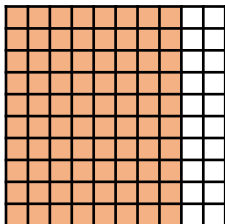


PS

3a. Simone thinks that $\frac{3}{4}$ of the squares are shaded.

Morgan thinks that 80% of the squares are shaded.

Grace thinks that 0.9 of the squares are shaded.



Who is correct? Explain your answer.

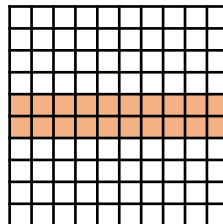


R

3b. Becky thinks that $\frac{1}{4}$ of the squares are shaded.

Ellie thinks that 30% of the squares are shaded.

Kelly thinks that 0.2 of the squares are shaded.



Who is correct? Explain your answer



R

Equivalent FDP

Equivalent FDP

4a. Millie says,



If I eat 60% of my birthday cake, there will be three fifths, or 0.6 left.

Do you agree?

Prove it.



R

4b. Saad says,



If I eat 0.625 of my birthday cake, there will be three eighths, or 37.5% left.

Do you agree?

Prove it.



R

5a. Joshua scored 75% on his Maths test.

Briony got $\frac{3}{5}$ of her answers correct.

Verity expresses her result as a decimal, which is 0.8.

Who scored the highest?

Show your working.



PS

5b. Will scored 60% on his English test.

Kate got $\frac{5}{8}$ of her answers correct.

Holly expresses her result as a decimal, which is 0.6.

Who scored the highest?

Show your working.

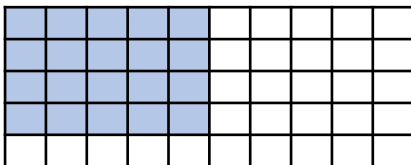


PS

6a. Mia thinks that $\frac{2}{5}$ of the squares are shaded.

Theo thinks that 20% of the squares are shaded.

Jasmine thinks that 0.4 of the squares are shaded.



Who is correct? Explain your answer.

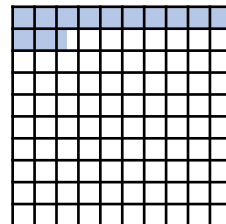


R

6b. George thinks that $\frac{3}{8}$ of the squares are shaded.

Connie thinks that 12.5% of the squares are shaded.

Alice thinks that 0.1 of the squares are shaded.



Who is correct? Explain your answer



R

Equivalent FDP

Equivalent FDP

7a. Safeeyah says,



Six fortieths of my cake has been eaten so there is 0.85 or 85% left.

Do you agree?

Prove it.



R

7b. Jacob says,



Fourteen sixteenths of my cake has been eaten so there is 0.25 or 25% left.

Do you agree?

Prove it.



R

8a. Jack scored 60% on his music exam.

Scarlett scored 34 out of 40.

Isaac expresses his result as a decimal, which is 0.85.

Who scored the highest?

Show your working.



PS

8b. Megan scored 75% on her tap exam.

Nate scored 12 out of 16.

Mo expresses his result as a decimal, which is 0.625.

Who scored the highest?

Show your working.

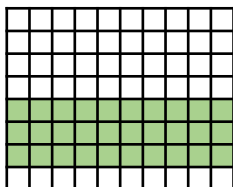


PS

9a. Sam thinks that $\frac{3}{10}$ of the squares are shaded.

James thinks that 30% of the squares are shaded.

Adam thinks that 0.375 of the squares are shaded.



Who is correct? Explain your answer.

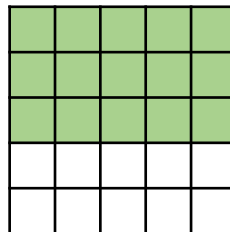


R

9b. Ellie thinks that $\frac{3}{5}$ of the squares are shaded.

Isla thinks that 70% of the squares are shaded.

Hafsa thinks that 0.6 of the squares are shaded.



Who is correct? Explain your answer



R

Reasoning and Problem Solving Equivalent FDP

Developing

- 1a. No. If she gives away 25% there will be 75% left which is equivalent to 0.75 and $\frac{3}{4}$.
- 2a. Kim: $50\% = 0.5 = \frac{1}{2}$. Jane: $\frac{7}{10} = 70\% = 0.7$. Lucy: $0.6 = 60\% = \frac{6}{10}$. Jane ate the most.
- 3a. Morgan is correct. 80 out of 100 squares are shaded which is equivalent to 80% or 0.8 or $\frac{8}{10}$.

Expected

- 4a. No. If she eats 60% then 40% will be left. 40% is equivalent to 0.4 and $\frac{2}{5}$.
- 5a. Briony: $\frac{3}{5} = 0.6 = 60\%$. Verity: $0.8 = 80\%$. Joshua: 75%. Verity scored the highest.
- 6a. Mia and Jasmine are both correct. 20 of the 50 squares are shaded which is equivalent to $\frac{2}{5}$ and 0.4.

Greater Depth

- 7a. Yes. Six fortieths can be simplified to three twentieths. There will be seventeen twentieths left which is equivalent to 0.85 and 85%.
- 8a. Scarlett: $\frac{34}{40} = \frac{17}{20}$, 0.85 and 85%. Isaac: $0.85 = 85\%$ and $\frac{17}{20}$. Jack: $60\% = 0.6$ and $\frac{3}{5}$. Scarlett and Isaac scored the highest.
- 9a. Adam is correct. 30 out of 80 squares are shaded which is equivalent to 0.375.

Reasoning and Problem Solving Equivalent FDP

Developing

- 1b. Yes. If he gives away $\frac{3}{10}$ there will be $\frac{7}{10}$ left which is equivalent to 0.7 and 70%.
- 2b. Nile: $75\% = 0.75 = \frac{3}{4}$. Max: $\frac{3}{4} = 75\% = 0.75$. James: $0.7 = 70\% = \frac{7}{10}$. Nile and Max ate the most.
- 3b. Kelly is correct. 20 out of 100 squares are shaded which is equivalent to 20% or 0.2 or $\frac{2}{10}$.

Expected

- 4b. Yes. 0.625 is equivalent to 62.5%. If she has eaten 62.5% then there is 37.5% or $\frac{3}{8}$ left.
- 5b. Will: $60\% = 0.6 = \frac{3}{5}$. Holly: $0.6 = 60\% = \frac{3}{5}$. Kate: $\frac{5}{8} = 62.5\% = 0.625$. Kate scored the highest.
- 6b. Connie is correct. 12.5 out of 100 squares are shaded which is equivalent to $\frac{1}{8}$ and 0.125.

Greater Depth

- 7b. No. Fourteen sixteenths can be simplified to seven eighths. There will be one eighth left which is equivalent to 0.125 and 12.5%.
- 8b. Nate: $\frac{12}{16} = \frac{3}{4}$, 0.75 and 75%. Mo: $0.625 = 62.5\%$ and $\frac{5}{8}$. Megan: $75\% = 0.75$ and $\frac{3}{4}$. Megan and Nate scored the highest.
- 9b. Ellie and Hafsa are correct. 15 out of 25 squares are shaded which is equivalent to $\frac{3}{5}$ and 0.6.