

Reasoning and Problem Solving

Step 7: Fractions of an Amount 1

National Curriculum Objectives:

Mathematics Year 3: (3F1b) [Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators](#)

Differentiation:

Questions 1, 4 and 7 (Reasoning)

Developing Explain the mistake when finding a unit fraction of an amount using groups and place value counters. No exchanging needed. Using multiples of 2, 5, and 10 and answers up to 5 times the denominator.

Expected Explain the mistake when finding a unit fraction of an amount using groups and place value counters. Exchanging sometimes needed. Using multiples of 2, 3, 4, 5, 8 and 10 and answers up to 12 times the denominator.

Greater Depth Explain the mistake when finding a unit fraction of an amount using groups and place value counters. Exchanging needed. Using multiples of 2, 3, 4, 5, 8 and 10 and answers beyond 12 times the denominator (using known times tables facts).

Questions 2, 5 and 8 (Problem Solving)

Developing Complete the missing number in a statement using multiples of 2, 5, and 10 and answers up to 5 times the denominator.

Expected Complete the missing number in a statement using multiples of 2, 3, 4, 5, 8 and 10 and answers up to 12 times the denominator.

Greater Depth Complete two missing numbers in a statement using multiples of 2, 3, 4, 5, 8 and 10 and answers beyond 12 times the denominator (using known times tables facts).

Questions 3, 6 and 9 (Reasoning)

Developing Determine the whole when given a quantity up to 5 that is one half, one fifth or one tenth.

Expected Determine the whole when given a quantity up to 5 that is one third, one quarter or one eighth.

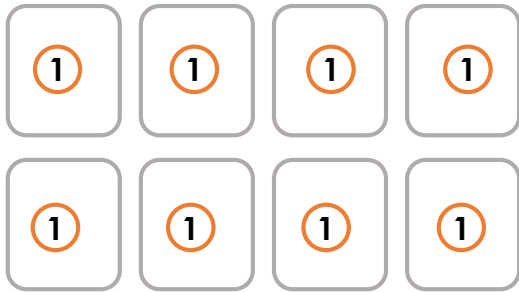
Greater Depth Determine the whole when given a quantity up to 10 that is one third, one quarter or one eighth.

More [Year 3 Fractions](#) resources.

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

Fractions of an Amount 1

1a. Molly thinks she has found $\frac{1}{2}$ of 8 using place value counters.



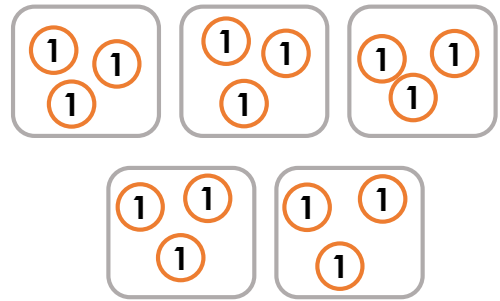
Is Molly correct? Convince me.



R

Fractions of an Amount 1

1b. Zach thinks he has found $\frac{1}{5}$ of 15 using place value counters.



Is Zach correct? Convince me.



R

2a. Fill in the missing box to make the statement true.

$$\frac{1}{3} \text{ of } 30 = \frac{1}{4} \text{ of } \boxed{}$$



PS

2b. Fill in the missing box to make the statement true.

$$\frac{1}{2} \text{ of } 10 < \frac{1}{2} \text{ of } \boxed{}$$



PS

3a. Xin is putting all of her toys away.

One fifth of her toys are still on the floor.



How many toys does she have altogether? Explain your answer.



R

3b. Phil is putting his pencils away.

One half of his pencils are still on the table.



How many pencils does he have altogether? Explain your answer.

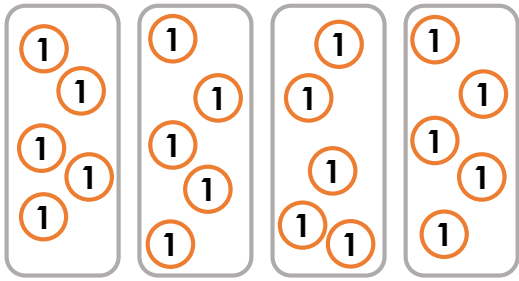


R

Fractions of an Amount 1

Fractions of an Amount 1

4a. Cassandra thinks she has found $\frac{1}{5}$ of 20 using place value counters.

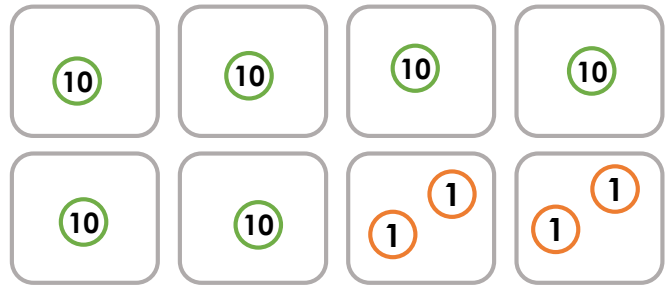


Is Cassandra correct? Convince me.



R

4b. Humza thinks he has found $\frac{1}{8}$ of 64 using place value counters.



Is Humza correct? Convince me.



R

5a. Fill in the missing box to make the statement true.

$$\frac{1}{4} \text{ of } 16 < \frac{1}{5} \text{ of } \square$$



PS

5b. Fill in the missing box to make the statement true.

$$\frac{1}{8} \text{ of } 16 = \frac{1}{2} \text{ of } \square$$



PS

6a. April is putting her pencils away.

One eighth of her pencils are still on the floor.



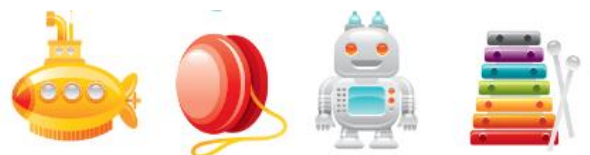
How many pencils does she have altogether? Explain your answer.



R

6b. Mikel is putting his toys away.

One quarter of his toys are still outside.



How many toys does he have altogether? Explain your answer.

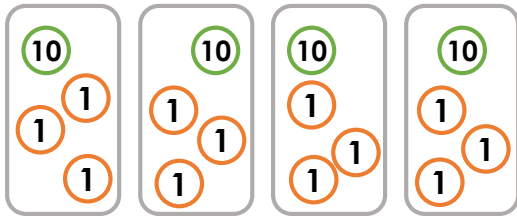


R

Fractions of an Amount 1

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7a. Laura thinks she has found $\frac{1}{4}$ of 52 using place value counters.

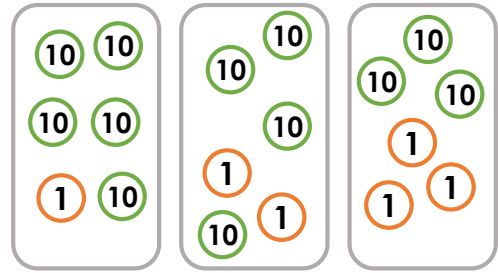


Is Laura correct? Convince me.



R

7b. Callum thinks he has found $\frac{1}{3}$ of 126 using place value counters.



Is Callum correct? Convince me.



R

8a. Fill in the missing boxes to make the statement true.

$$\frac{1}{3} \text{ of } \square > \frac{1}{4} \text{ of } \square$$



PS

8b. Fill in the missing boxes to make the statement true.

$$\frac{1}{8} \text{ of } \square = \frac{1}{4} \text{ of } \square$$



PS

9a. Lucie was sorting the books on her shelves. She gave away lots of the books until only one eighth were left.



How many books were there to begin with? Explain your answer.



R

9b. Claire was sorting the bottles in her bathroom. She threw away lots of bottles until only one quarter were left.



How many bottles did Claire have to begin with? Explain your answer.



R

Reasoning and Problem Solving Fractions of an Amount 1

Developing

- 1a. No; she has made 8 equal groups rather than 2 equal groups.
2a. 40
3a. 10 because one fifth of ten is two.

Expected

- 4a. No; she has made 4 equal groups rather than 5 so she has found quarters.
5a. Various answers, for example: 25
6a. 40 because 5 is one eighth of 40.

Greater Depth

- 7a. Yes because she has made 4 equal groups of 13.
8a. Various answers, for example: 9 and 8
9a. 72 because one eighth of 72 is 9.

Reasoning and Problem Solving Fractions of an Amount 1

Developing

- 1b. Yes; he has made 5 equal groups of 3.
2b. Various answers, for example: 16
3b. Six because one half of six is three.

Expected

- 4b. No; he does not have equal groups. He should have exchanged the tens counters for ones and made 8 equal groups of 8.
5b. 4
6b. 16 because 4 is one quarter of 16.

Greater Depth

- 7b. No; his groups are not equal. He should have shared his tens counters equally and then his ones counters equally, giving 3 equal groups of 42.
8b. Various answers, for example: 64 and 32
9b. 36 because one quarter of 36 is 8.