Reasoning and Problem Solving
Step 2: Ratio And Fractions

National Curriculum Objectives:

Mathematics Year 6: (6R1) Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts
Mathematics Year 6: (6R4) Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples

Differentiation:

Questions 1, 4 and 7 (Problem Solving)
Developing Write 3 pairs of fractions to show a possible ratio of 2 objects.
Expected Write 5 pairs of fractions to show a possible ratio of 2 objects.
Greater Depth Write 5 pairs of fractions to show a possible ratio of 3 objects.

Questions 2, 5 and 8 (Reasoning)
Developing Explain whether a statement is correct. Comparing 2 sets of objects with pictorial representation. Denominator of 10 or less.
Expected Explain whether a statement is correct. Comparing 2 (out of 3) sets of objects.
Greater Depth Explain whether a statement is correct. Comparing 3 sets of objects.

Questions 3, 6 and 9 (Reasoning)
Developing Explain whether two statements are correct. Comparing 2 sets of objects with pictorial representation.
Expected Explain whether two statements are correct. Comparing 2 sets of objects.
Greater Depth Explain whether two statements are correct. Comparing 3 sets of objects.

More Year 6 Ratio resources.

Did you like this resource? Don't forget to review it on our website.

Ratio And Fractions

1a. James is making a keyring using red and green beads.

Each keyring contains 20 beads in total.

Write 3 pairs of fractions to show the possible ratio of red to green beads.

D ⭐   PS

Ratio And Fractions

1b. Tara is making a keyring using blue and purple beads.

Each keyring contains 15 beads in total.

Write 3 pairs of fractions to show the possible ratio of blue to purple beads.

D ⭐   PS

2a. Which of the following statements match the image?

A. $\frac{4}{9}$ of the fruit are satsumas.

B. There are nine fruits in total.

C. There are five lemons for every five satsumas.

Explain how you know.

D ⭐   R

2b. Which of the following statements match the image?

A. There are five vegetables in total.

B. $\frac{2}{6}$ of the vegetables are onions.

C. There are two cabbages for every four onions.

Explain how you know.

D ⭐   R

3a. Sam has a bag of 5p and 10p coins.

Sam says,
> $\frac{3}{8}$ of the coins are 10p coins.

Bella says,
> There are five 5p coins for every eight 10p coins.

Who is correct? Explain how you know.

D ⭐   R

3b. Amy has a bag of 1p and 2p coins.

Amy says,
> There are four 2p coins for every five 1p coins.

Bobby says,
> $\frac{4}{9}$ of the coins are 1p coins.

Who is correct? Explain how you know.

D ⭐   R

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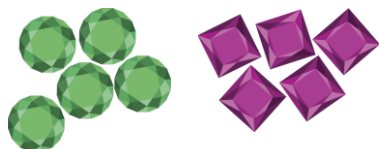Reasoning and Problem Solving – Ratio And Fractions – Year 6 Developing

Ratio And Fractions

Ratio And Fractions

4a. Pippa is making a bracelet using purple and green jewels.

Each bracelet contains 30 jewels in total.

Write 5 pairs of fractions to show the possible ratio of green to purple jewels.
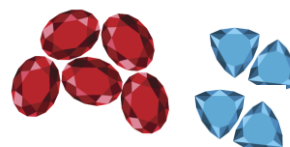
PS

4b. Carol is making a necklace using red and blue jewels.

Each necklace contains 45 jewels in total.

Write 5 pairs of fractions to show the possible ratio of red to blue jewels.

PS

5a. Which of the following statements match the image?

A. $\frac{3}{9}$ of the fruit are lemons.

B. There are eleven items in total.

C. There are three satsumas for every four strawberries.

Explain how you know.

R

5b. Which of the following statements match the image?

A. There are nine items in total.

B. $\frac{4}{10}$ of the items are carrots.

C. There is one tomato for every onion.

Explain how you know.

R

6a. Millie has a bag of 5p and 10p coins.

$\frac{2}{9}$ of the coins are 10p coins.

Millie says,

There are seven 5p coins for every two 10p coins.

Jaxon says,

There are 9 coins in total.

Who is correct? Explain how you know.

R

6b. Stan has a bag of 1p and 2p coins.

$\frac{9}{15}$ of the coins are 2p coins.

Susie says,

There are 24 coins in total.

Stan says,

There are six 1p coins for every nine 2p coins.

Who is correct? Explain how you know.

R

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Reasoning and Problem Solving – Ratio And Fractions – Year 6 Expected

Ratio And Fractions

Ratio And Fractions

7a. Janet is baking a cake using butter, sugar and flour.

The ingredients weigh 1,000g in total.

Write 5 sets of fractions to show the possible ratio of butter to sugar to flour.

Show the fractions in their simplest form.

PS

7b. Spencer is baking biscuits using oats, sugar and butter.

The ingredients weigh 1,200g in total.

Write 5 pairs of fractions to show the possible ratio of oats to sugar to butter.

Show the fractions in their simplest form.

PS

8a. Which of the following statements match the image?

A. $\frac{1}{3}$ of the fruits are cherries.
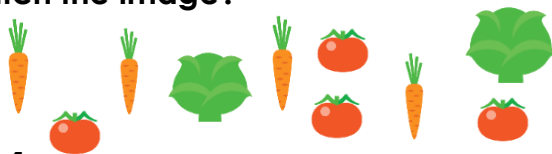
B. Plums make up $\frac{1}{2}$ the fruit.

C. There are half as many cherries as plums.

Explain how you know.

R

8b. Which of the following statements match the image?

A. $\frac{1}{5}$ of the salad is lettuce.

B. $\frac{1}{2}$ of the salad is tomatoes.

C. There are 3 carrots for every lettuce.

Explain how you know.

R

9a. Benji has a bag of 20p, 5p and 10p coins. The total value is £1.

Benji says,

> $\frac{1}{2}$ of the total is made of 20p coins.

Gail says,

> Benji has four 10p coins and four 5p coins for every two 20p coins.

Who is correct? Explain how you know.

R

9b. Jack has a bag of 2p, 5p and 10p coins. The total value is 85p.

Claire says,

> Jack has 5 of each different coin.

Jack says,

> $\frac{1}{2}$ of the total value is from 2p coins.

Who is correct? Explain how you know.

R

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Reasoning and Problem Solving – Ratio And Fractions – Year 6 Greater Depth

Reasoning and Problem Solving
Ratio And Fractions

Developing

1a. Various answers, for example: $\frac{10}{20}$ red and $\frac{10}{20}$ green. Also accept fractions which have been simplified.

2a. B because there are 5 satsumas and 4 lemons, which makes 9 in total.

3a. Sam is correct. There are 8 coins in total and 3 are 10p coins.

Developing

1b. Various answers, for example: $\frac{10}{15}$ blue and $\frac{5}{15}$ purple. Also accept fractions which have been simplified.

2b. B because there are 6 vegetables in total and two of them are onions.

3b. Amy is correct. There are four 2p coins and five 1p coins.

Expected

4a. Various answers, for example: $\frac{10}{30}$ green and $\frac{20}{30}$ purple. Also accept fractions which have been simplified.

5a. C because there are 3 satsumas and 4 strawberries.

6a. Both statements could be correct because the denominator is 9 which shows a total of 9 coins (if the fraction has not been simplified). If 2 are 10p coins, then 7 must be 5p coins.

Expected

4b. Various answers, for example: $\frac{30}{45}$ red and $\frac{15}{45}$ blue. Also accept fractions which have been simplified.

5b. A because there are 4 carrots, 2 tomatoes and 3 onions, so 9 in total.

6b. Stan is correct. There are 15 coins in total, so if 9 are 2p coins, 6 must be 1p coins.

Greater Depth

7a. Various answers, for example: $\frac{1}{2}$ butter, $\frac{1}{4}$ sugar and $\frac{1}{4}$ flour.

8a. A because there are 18 fruits in total and 6 of them are cherries; 6 is $\frac{1}{3}$ of 18.

9a. Gail is correct. Four 10p coins = 40p, four 5p coins = 20p, two 20p coins = 40p.

Greater Depth

7b. Various answers, for example: $\frac{1}{3}$ oats, $\frac{1}{3}$ sugar and $\frac{1}{3}$ butter.

8b. A because there are 10 vegetables in total, so 2 lettuces are $\frac{1}{5}$ of the total.

9b. Claire is correct. Five 2p coins = 10p, five 5p coins = 25p and five 10p coins = 50p.

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Reasoning and Problem Solving – Ratio And Fractions ANSWERS