

Fair Trade Fractions

Aim: Solve problems using fractions and percentages by: calculating quantities and using fractions to divide quantities; adding and subtracting fractions; using the relationship between fractions, decimals and percentages.

Banana Trader

Follow the route from budding banana plant to harvesting and use your knowledge of fractions to find out how well the banana plants grow, where the bananas are sold and the challenges and the benefits that could affect the crop along the way.



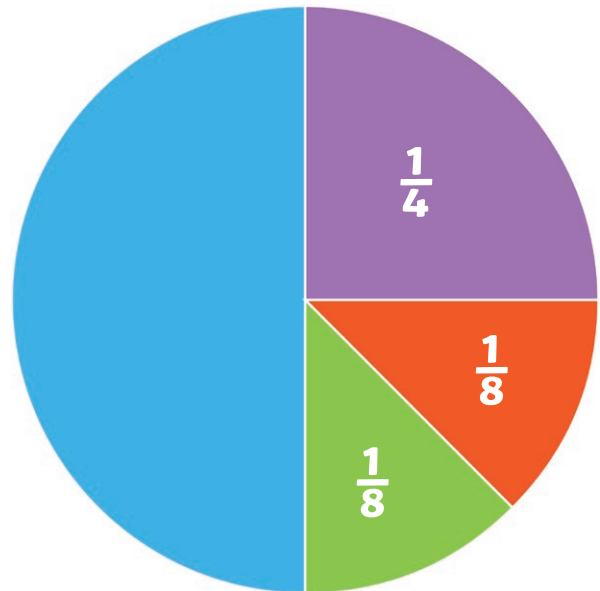
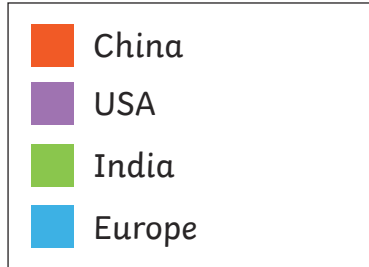
Planting the Crop

Eduardo the banana farmer plants 500 banana plants every season. There are some challenges and benefits on his farm. Using your fractions skills, work out the quantities and complete the table here.

Eduardo's Bananas	Challenge/Benefit	Answer
1. Eduardo planted 500 banana plants at the beginning of the season.	He had someone to help him dig holes for $\frac{1}{4}$ of the banana plants.	How many holes did he have to dig himself? _____
2. 500 banana plants were growing slowly.	Eduardo had enough organic fertiliser for $\frac{1}{4}$ of the slow-growing crop.	How many banana plants had fertiliser? _____
3. Eduardo's 500 banana plants were all ripening well.	A flash flood washed away 200 banana plants.	What fraction of the crop was destroyed? _____
4. 400 banana plants are ready to harvest.	Eduardo has help to harvest 300 of these plants.	What fraction of the crop did Eduardo have help to harvest? _____
5. Eduardo has sold all 500 of his banana plants and needs to plant a new crop.	Eduardo can plant another $\frac{1}{2}$ as many crops as he harvested last year.	How many banana plants does Eduardo have this time? _____

Sending the Crop around the World

Look carefully at the pie chart and answer the questions using the information.



1. What fraction of the bananas goes to Europe? How do you know?

2. If 400 bananas go to the USA, how many bananas go to China, India and Europe?

3. How many bananas are exported altogether?

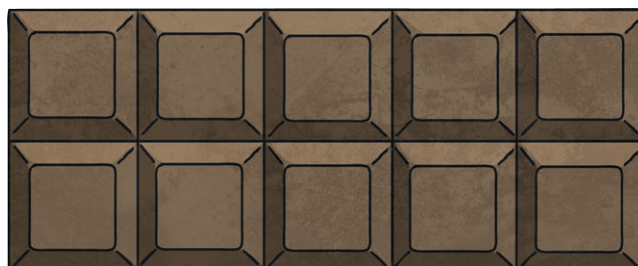
4. If the number of bananas that go to the USA is increased to 600, how many bananas go to China, India and Europe now?

5. How many bananas are exported altogether now?

Chocolate Chunks

A fair trade chocolate producer wants to divide samples of his chocolate for tasting. Use your fractions skills to work out how many sections each taster has to taste.

Each bar is divided into 10 sections.



1. If there are ten tasters, what fraction of the chocolate bar would they each have?

2. If the ten tasters had two bars of chocolate, what fraction would they each have now?

3. If the ten tasters had seven bars of chocolate, what fraction would they each have now?

Challenge:

Would each of the ten tasters have more sections of chocolate to taste if they had $\frac{1}{2}$ of five bars to share or $\frac{1}{2}$ of ten bars? How do you know?

Fair Trade Fractions - Answers

Planting the Crop

1. 375
2. 125
3. $\frac{2}{5}$
4. $\frac{3}{4}$
5. 750

Sending the Crop around the World

1. $\frac{1}{2}$ – because I can see it is $\frac{1}{2}$ of the circle, or I know $\frac{1}{4}$ and $\frac{1}{8}$ and $\frac{1}{8} = \frac{1}{2}$, so $\frac{1}{2}$ must go to Europe.
2. China: 200, India: 200, Europe: 800
3. 1 600
4. China: 300, India: 300, Europe: 1 200
5. 2 400

Chocolate Chunks

1. $\frac{1}{10}$
2. $\frac{2}{10}$
3. $\frac{7}{10}$

Challenge

$\frac{1}{2}$ of ten bars to share will give more than $\frac{1}{2}$ of five bars to share.

Explanation

The ten tasters could divide 5 bars into $\frac{1}{2}$. $\frac{1}{2}$ of each bar = 5 sections; x 5 bars = 25 sections. Divide by 10 tasters = 2.5 sections each.

The ten tasters could share 10 bars into $\frac{1}{2}$, to give 5 sections. 5 sections x 10 bars = 50 sections. Divide by 10 tasters = 5 sections each.

Fair Trade Fractions

Aim: Solve problems using fractions and percentages by: calculating quantities and using fractions to divide quantities; adding and subtracting fractions; using the relationship between fractions, decimals and percentages.

Banana Trader

Follow the route from budding banana plant to harvesting and use your knowledge of fractions to find out how well the banana plants grow, where the bananas are sold and the challenges and the benefits that could affect the crop along the way.



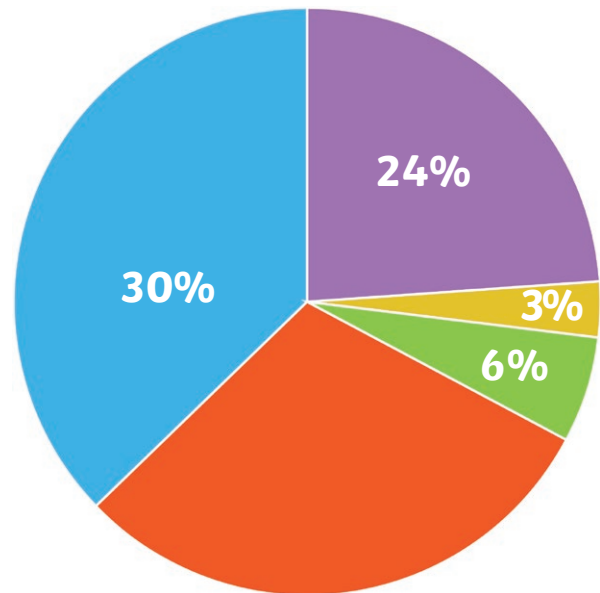
Planting the Crop

Eduardo the banana farmer plants 1 000 banana plants every season. There are some challenges and benefits on his farm. Using your fractions skills, work out the quantities and complete the table here.

Eduardo's Bananas	Challenge/Benefit	Answer
1. Eduardo planted 1 000 banana plants at the beginning of the season.	He had someone to help him dig holes for $\frac{1}{4}$ of the banana plants.	How many holes did he have to dig himself? _____
2. 900 banana plants were growing slowly.	Eduardo had enough organic fertiliser for $\frac{1}{3}$ of the slow-growing crop.	How many banana plants had fertiliser? _____
3. Eduardo's 1 000 banana plants were all ripening well.	A flash flood washed away 200 banana plants.	What fraction of the crop was destroyed? _____
4. 600 banana plants are ready to harvest.	Eduardo has help to harvest 400 of these plants.	What fraction of the crop did Eduardo have help to harvest? _____
5. Eduardo has sold all of his bananas and needs to plant his new crop.	Eduardo can plant another $\frac{1}{2}$ as many plants as his last crop.	How many banana plants does Eduardo have this time? _____

Sending the Crop around the World

Look carefully at the pie chart and answer the questions using the information.



1. What percentage of the bananas goes to Europe? How do you know?

2. If the number of bananas that go to China is 400, how many bananas go to Canada, the USA, the rest of the world and Europe? Round the amount going to Europe to the nearest **hundred**.

3. How many bananas are exported altogether?

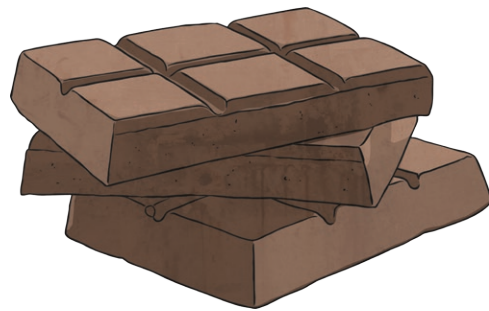
4. If the number of bananas that go to Canada is increased to 1 600, how many bananas go to China, the USA, the rest of the world and Europe now?

5. How many bananas are exported altogether now?

6. If the order was changed and $\frac{1}{2}$ of the total order was going to Europe, $\frac{1}{4}$ was going to the rest of the world, $\frac{1}{8}$ was going to Canada and $\frac{1}{8}$ going to USA, how many bananas would go to each destination? How can you check your calculations are correct?

Chocolate Chunks

A fair trade chocolate producer wants to trade the chocolate he produces, but each person he trades with will take their share of the profits.



Follow the supply chain.

Using the information in the table, find out what share of the profits each supplier in the chain receives. Record each share as a fraction, a decimal and percentage. Then, subtract each charge from the total and calculate the next charge.

Value of chocolate	Supply costs	Fraction	Decimal	Percentage
£ 5 000	1. The harvesters charge £500.	$500 \div 5\,000 = 1/10$	0.1	10%
£4 500	2. The shipping line charges £900.			
£ _____	3. The lorry drivers charge £900.			
£ _____	4. The packaging company charge £270.			
£ _____	5. The cocoa plant supplier charges £1 215.			
£ _____				

If the supermarket then pays £5 000 for the chocolate, how much will the trader have as profit in total?

Fair Trade Fractions - Answers

Planting the Crop

1. 750
2. 300
3. $\frac{200}{1000}$ or $\frac{2}{10}$ or $\frac{1}{5}$
4. $\frac{400}{600}$ or $\frac{4}{6}$ or $\frac{2}{3}$
5. 750 plants

Sending the Crop around the World

1. $24\% + 3\% + 6\% + 30\% = 63\%$, so 37% must go to Europe.
2. Canada: 800, USA: 3 200, the rest of the world: 4 000, Europe: 4 933, rounded to 4 900.
3. 13 300
4. China: 800, USA: 6 400, rest of the world: 8 000, Europe: 9 800
5. 26 600
6. 13 300 to Europe; 6 650 to the rest of the world; 3 325 to Canada and 3 325 to USA).

To check, add each amount together and the total will be 26 600.

Chocolate Chunks

Value of chocolate	Supply costs	Fraction	Decimal	Percentage
£ 5 000	1. The harvesters charge £500.	$500 \div 5\,000 = 1/10$	0.1	10%
£4 500	2. The shipping line charges £900.	$900 \div 4\,500 = 1/5$	0.2	20%
£3 600	3. The lorry drivers charge £900.	$900 \div 3\,600 = 1/4$	0.25	25%
£2 700	4. The packaging company charge £270.	$270 \div 2\,700 = 1/10$	0.1	10%
£2 430	5. The cocoa plant supplier charges £1 215.	$1\,215 \div 2\,430 = 1/2$	0.5	50%
£ 1 215				

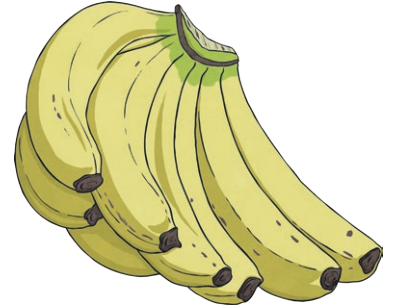
$£5\,000 + £1\,215 = £6\,215$

Fair Trade Fractions

Aim: Solve problems using fractions and percentages by: calculating quantities and using fractions to divide quantities; adding and subtracting fractions; using the relationship between fractions, decimals and percentages.

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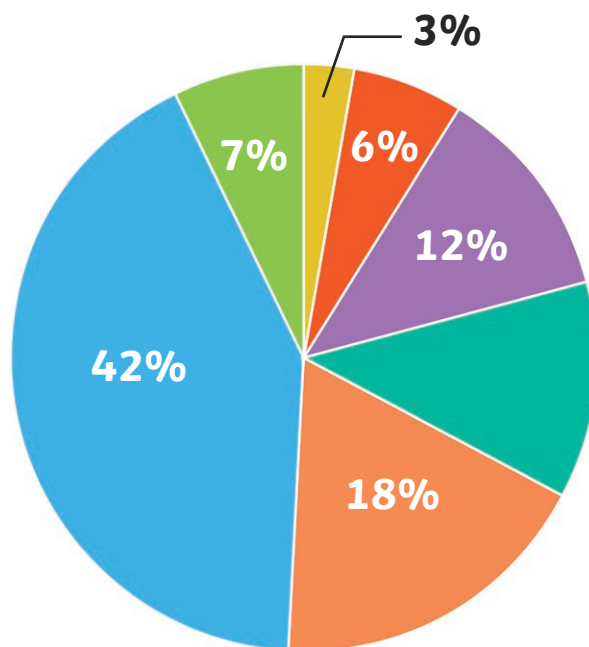
Planting the Crop

Eduardo the banana farmer plants 10 000 banana plants every season. There are some challenges and benefits on his farm. Using your fractions skills, work out the quantities and complete the table here. Record fractions in their simplest form.

Eduardo's Bananas	Challenge/Benefit	Answer
1. Eduardo planted 10 000 banana plants at the beginning of the season.	He had someone to help him dig holes for $\frac{3}{4}$ of the banana plants.	How many holes did he have to dig himself? _____
2. 9000 banana plants were growing slowly.	Eduardo had enough organic fertiliser for $\frac{1}{3}$ of the slow-growing crop.	How many banana plants had fertiliser? _____
3. Eduardo's 10 000 banana plants were all ripening well.	A flash flood washed away 2 000 banana plants.	What fraction of the crop was destroyed? _____
4. 7 500 banana plants are ready to harvest.	Eduardo has help to harvest 2 500 of these plants.	What fraction of the crop did Eduardo have help to harvest? _____
5. Eduardo has sold all of his bananas and needs to plant his new crop.	Eduardo can plant another $\frac{3}{4}$ as many plants as his last crop.	How many banana plants does Eduardo have this time? _____

Sending the Crop around the World

Look carefully at the pie chart and answer the questions using the information.



1. What percentage of the bananas go to Europe? How do you know?

2. If the number of bananas that go to China is 500, how many bananas go to Canada, the USA, Russia, the UK and Europe? Round the amount going to the rest of the world to the nearest **hundred**.

3. How many bananas are exported altogether?

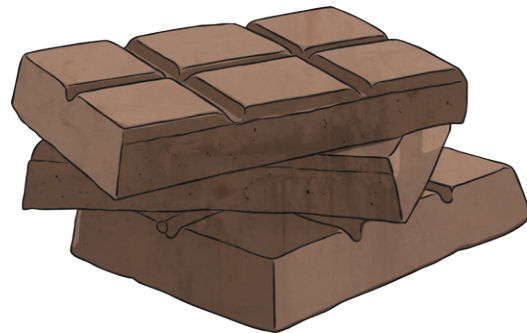
4. If the number of bananas that go to Canada is increased by 100%, how many bananas go to China, the USA, Russia, the UK, Europe and the rest of the world now?

5. How many bananas are exported altogether now?

6. If the order was changed and $\frac{2}{5}$ of the total order was going to Europe, $\frac{2}{10}$ was going to the Rest of the World, and $\frac{4}{10}$ going to USA, how many bananas would go to each destination? How can you check your calculations are correct?

Chocolate Chunks

Traders need to get the best price for their products as possible, but they may need to compare prices for different services along the supply chain so they get the best value for money and keep as much profit as they can.



Help the chocolate trader to get the best price for the services he needs to get his chocolate from the farm to the supermarket. Once you calculate the best price for each service, subtract the amount from the running total in the left hand column. Show your workings as you make your choices.

Value of chocolate	Supply costs	Workings
£ 5 000	1. Is the best value for the harvesters: a. £500 or, b. $\frac{2}{10}$ of £5 000?	a. £500 as $\frac{2}{10} \times £5\ 000 = £1\ 000$
£4 500	2. Is the best value for the shipping line: a. £900 or b. 25% of £4,500?	
£ _____	3. Is the best value for the lorry drivers: a. £1 200 or b. 0.25 of £3 600?	
£ _____	4. Is the best value for the packaging company: a. 10% of £2 700 or a charge of £290?	
£ _____	5. Is the best value for the cocoa plant supplier: a. £1 210 or b. $\frac{1}{2}$ of £2 430?	
£ _____		

Challenge

The trader gets an international trading rebate that takes the final value of his chocolate to $\frac{1}{4}$ the original value. How much rebate does he receive?

Fair Trade Fractions - Answers

Planting the Crop

1. 2 500
2. 3 000
3. $\frac{200}{10\ 000}$ or $\frac{2}{10}$ or $\frac{1}{5}$
4. $\frac{2500}{7\ 500}$ or $\frac{25}{75}$ or $\frac{1}{3}$
5. 17 500

Sending the Crop around the World

1. $3\% + 6\% + 12\% + 18\% + 42\% + 7\% = 88\%$ so 12% must go to Europe.
2. Canada: 1 000, USA: 2 000, Russia: 3 000, UK: 7 000, Europe: 2 000, Rest of the World: 1 166.66 rounded to 1 200
3. 16 700
4. China: 1 000, USA: 4 000, Russia: 6 000, UK: 14 000, Europe: 4 000, Rest of the World: 2 400
5. 33 400
6. $\frac{2}{5}$ of 33 400 = 13 360; $\frac{2}{10} = \frac{1}{5}$ of 33 400 = 6 680; $\frac{4}{10} = \frac{2}{5}$ of 33 400 = 13 360.
To check, add each amount together and the total will be 33 400.

Chocolate Chunks

Value of chocolate	Supply costs	Workings
£ 5 000	1. Is the best value for the harvesters: a. £500 or, b. $\frac{2}{10}$ of £5 000?	a. £500 as $\frac{2}{10} \times £5\ 000 = £1\ 000$
£4 500	2. Is the best value for the shipping line: a. £900 or b. 25% of £4,500?	a. £ 900 as 25% of £4 500 = £1 125
£3 600	3. Is the best value for the lorry drivers: a. £1 200 or b. 0.25 of £3 600?	b. 0. 25 of £3 600= £900
£2 700	4. Is the best value for the packaging company: a. 10% of £2 700 or a charge of £290?	a. 10% of £2 700 = £2 700
£2 430	5. Is the best value for the cocoa plant supplier: a. £1 210 or b. $\frac{1}{2}$ of £2 430?	b. $\frac{1}{2}$ of £2 430 = £1 215
£ 1 215		

Challenge

£35 as $\frac{1}{4}$ of £5 000 = £1 250.

£1 250 - £1 215 = £35