Reasoning and Problem Solving
Step 22: Percentage Increase and Decrease

National Curriculum Objectives:

Mathematics Year 6: (6R2) Solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison

Differentiation:

Questions 1, 4 and 7 (Reasoning)
Developing Explain if a statement is correct. Using 10%, 25%, 50% and 75%.
Expected Explain if a statement is correct. Using multiples of 5% and 10%.
Greater Depth Explain if a statement is correct. Using a range of percentages.

Questions 2, 5 and 8 (Reasoning)
Developing Explain the efficiency of a method. Using 10%, 25%, 50% and 75%.
Expected Explain the efficiency of a method. Using multiples of 5% and 10%.
Greater Depth Explain the efficiency of a method. Using a range of percentages.

Questions 3, 6 and 9 (Problem Solving)
Developing Calculate an original price. Using 10%.
Expected Calculate an original price. Using 5% and 20%.
Greater Depth Calculate an original price. Using a multiple of 10, greater than 20%, not 50%.

More Year 5 and Year 6 Decimals and Percentages resources.

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

Percentage Increase and Decrease

1a. Felix is selling his car.

The car has decreased in value by 25% since he bought it.

He paid £200.

He has worked out that the car is now worth £125.

Is Felix correct? Explain your answer.

D

6 R

Percentage Increase and Decrease

1b. Hafsa is selling her bike.

The bike has decreased in value by 10% since she bought it.

She paid £80.

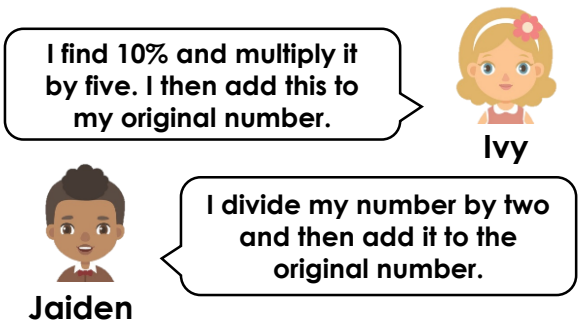
She has worked out that the bike is now worth £72.

Is Hafsa correct? Explain your answer.

D

6 R

2a. Two children were asked to explain their method for calculating a 50% increase:

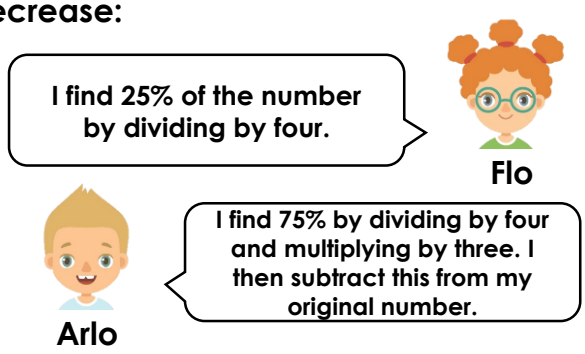


Who has the most efficient method? Explain your answer.

D

6 R

2b. Two children were asked to explain their method for calculating a 75% decrease:



Who has the most efficient method? Explain your answer.

D

6 R

3a. Jess is buying a football kit.

There is 10% off for today only.

Jess calculates that 10% of the cost of the football kit is £5.50.

What is the original price of the football kit?

D

6 PS

3b. Dan is buying a rugby kit.

There is 10% off for today only.

Dan calculates that 10% of the cost of the rugby kit is £7.90.

What is the original price of the rugby kit?

D

6 PS

Percentage Increase and Decrease

4a. Katie is selling her car.

The car has decreased in value by 45% since she bought it.

She paid £2,500.

She has worked out that the car is now worth £1,125.

Is Katie correct? Explain your answer.

E

6 R

Percentage Increase and Decrease

4b. Euan is selling his motorbike.

The motorbike has decreased in value by 15% since he bought it.

He paid £5,000.

He has worked out that the motorbike is now worth £4,150.

Is Euan correct? Explain your answer.

E

6 R

5a. Two children were asked to explain their method for calculating a 20% increase:

I find 10% and double it. I then add this to my original number.

Isla

I divide my number by five and then add it to the original number.

Toby

Who has the most efficient method? Explain your answer.

E

6 R

5b. Two children were asked to explain their method for calculating a 30% decrease:

I find 70% of the number by dividing by ten and then multiplying by seven.

Millie

I find 30% by dividing by ten and then multiplying by three. I then subtract this from my original number.

Jacob

Who has the most efficient method? Explain your answer.

E

6 R

6a. Lily is buying some trainers.

There is 5% off for today only.

Lily calculates that 5% of the cost of the trainers is £2.25.

What is the original price of the trainers?

E

6 PS

6b. Eesa is buying some rugby boots.

There is 20% off for today only.

Eesa calculates that 20% of the cost of the rugby boots is £4.50.

What is the original price of the rugby boots?

E

6 PS

Percentage Increase and Decrease

7a. Safeeyah is selling her van.

The van has decreased in value by 7% since she bought it.

She paid £4,500.

She has worked out that the van is now worth £3,185.

Is Safeeyah correct? Explain your answer.

GD

6 R

Percentage Increase and Decrease

7b. Jake is selling his sports car.

The sports car has decreased in value by 12% since he bought it.

He paid £7,250.

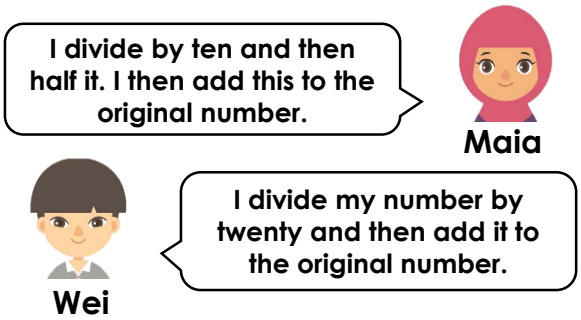
He has worked out that the sports car is now worth £6,380.

Is Jake correct? Explain your answer.

GD

6 R

8a. Two children were asked to explain their method for calculating a 5% increase:

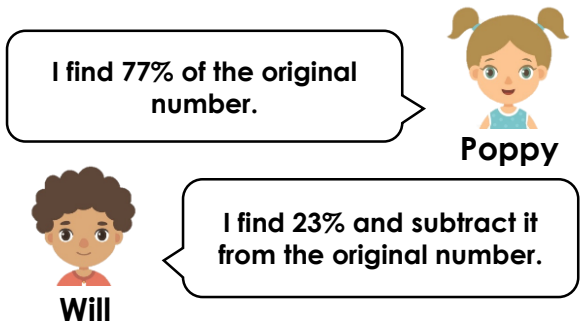


Who has the most efficient method? Explain your answer.

GD

6 R

8b. Two children were asked to explain their method for calculating a 23% decrease:



Who has the most efficient method? Explain your answer.

GD

6 R

9a. Olivia is buying a bike.

There is 60% off for today only.

Olivia calculates that 60% of the cost of the bike is £120.

What is the original price of the bike?

GD

6 PS

9b. Hamza is buying a scooter.

There is 30% off for today only.

Hamza calculates that 30% of the cost of the scooter is £90.

What is the original price of the scooter?

GD

6 PS

Reasoning and Problem Solving
Percentage Increase and Decrease

Developing

1a. No. The car is worth £150 because 25% of £200 = £50; £200 – £50 = £150

2a. Both methods are acceptable. Jaiden's method has fewer steps so may be quicker. Children may have different answers depending on their preferred method, or may propose further methods.

3a. £55

Expected

4a. No. The car is worth £1,375 because 55% of £2,500 is £1,375. Explanations may vary depending on the method used.

5a. Both methods are acceptable. Toby's method has fewer steps so may be quicker. Children may have different answers depending on their preferred method, or may propose further methods.

6a. £45

Greater Depth

7a. No. The van is worth £4,185 because 93% of £4,500 = £4,185. Explanations may vary depending on the method used.

8a. Both methods are acceptable. Wei's method has fewer steps, but may be more difficult. Children may have different answers depending on their preferred method, or may propose further methods.

9a. £200

Reasoning and Problem Solving
Percentage Increase and Decrease

Developing

1b. Yes. 10% of £80 = £8; £80 – £8 = £72

2b. Both methods are acceptable. Flo's method has fewer steps so may be quicker. Children may have different answers depending on their preferred method, or may propose further methods.

3b. £79

Expected

4b. No. The motorbike is worth £4,250 because 85% of £5,000 is £4,250. Explanations may vary depending on the method used.

5b. Both methods are acceptable. Millie's method has fewer steps so may be quicker. Children may have different answers depending on their preferred method, or may propose further methods.

6b. £22.50

Greater Depth

7b. Yes. 88% of £7,250 = £6,380 Explanations may vary depending on the method used.

8b. Both methods are acceptable. Poppy's method has fewer steps so may be quicker. Children may have different answers depending on their preferred method, or may propose further methods.

9b. £300