PERCENTAGE INCREASE AND DECREASE

BUILDING BLOCKS

NAME _____ CLASS _____ DATE _____

KEY IDEA

100% is the whole amount. Split it into 10 equal parts: each part is 10%.

100% = £50

10%	10%	10%	10%	10%	10%	10%	10%	10%	10%

To find 50%: ÷ 2
To find 10%: ÷ 10
To find 1%: ÷ 100

Increase: add on. Decrease: take away.

1 Complete the percentage table for £40. Do the same to both sides.

	100%	£40	
÷ 2	50%		÷ 2
÷ 10	10%		÷ 10
÷ 100	1%		÷ 100

Now use your table:

20% = 2 × 10% = £ ____

60% = 50% + 10% = £ ____

2 A T-shirt costs £60. In a sale, the price is decreased by 10%.

100% = £60



The striped part is taken away.

a) 10% of £60 = £ ____

b) New price = £ ____

3 A sunflower is 30 cm tall. Its height increases by 10%.

100% = 30 cm +10%



The blue part is added on.

a) 10% of 30 cm = ____ cm

b) New height = ____ cm

4 Circle INCREASE or DECREASE. Then use the bar to work out the new amount.

a) A £120 coat has 25% off.

£120

25%	25%	25%	25%

INCREASE DECREASE

New price = £ ____

b) 40 people on a bus. 50% more get on.

40 people

50%	50%	50%

INCREASE DECREASE

People now = ____

PERCENTAGE INCREASE AND DECREASE

SUPPORT

NAME _____ CLASS _____ DATE _____

KEY IDEA

The original amount is 100%. A multiplier takes you straight to the new amount.

Increase by 20%

20%	20%	20%	20%	20%	20%

100% + 20% = 120% so × 1.2

Decrease by 20%

20%	20%	20%	20%	20%

100% – 20% = 80% so × 0.8

1 Complete the table.

CHANGE	INCREASE BY 30%	DECREASE BY 30%	INCREASE BY 5%	DECREASE BY 15%
New %	**130%**			
Multiplier	**1.3**			

2 Find the new price in three ways. Check you get the same answer each time.



a) 30% of £40 = £ ____ £40 – £ ____ = £ ____

b) 100% – 30% = ____ % so 70% of £40 = £ ____

c) Multiplier: £40 × ____ = £ ____

3 Write the multiplier in the first box. Then work out the new amount.

a) Increase £80 by 25% £80 × ____ = £ ____

b) Decrease £50 by 10% £50 × ____ = £ ____

c) Increase 200 g by 15% 200 g × ____ = ____ g

d) Decrease £120 by 35% £120 × ____ = £ ____

4 Draw a line to match each percentage change to its multiplier.

15% increase	**0.85**
1.5% decrease	**1.015**
15% decrease	**1.15**
1.5% increase	**0.985**

PERCENTAGE INCREASE AND DECREASE

CORE

NAME _____ CLASS _____ DATE _____

KEY IDEA

To increase by p%, multiply by (100 + p)%. To decrease by p%, multiply by (100 – p)%. Write the percentage as a decimal: a 4% increase is × 1.04 (not 1.4); a 35% decrease is × 0.65 (not 0.35).

FLUENCY

1 Write the multiplier for each percentage change.

a) 40% increase ☐ **b)** 4% increase ☐ **c)** 0.4% increase ☐

d) 35% decrease ☐ **e)** 3.5% decrease ☐ **f)** 0.5% decrease ☐

2 Use a multiplier to work out each new amount.

a) Increase £240 by 15% ☐ **b)** Decrease 650 kg by 8% ☐

c) Increase £18.50 by 4% ☐ **d)** Decrease 1200 ml by 0.5% ☐

REASONING

3 A coat costs £85. In a sale, its price is decreased by 35%.

Tom says, "85 × 0.35 = 29.75, so the new price is £29.75"

a) Explain Tom's mistake.

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b) Work out the correct new price. ☐

4 Compare the two amounts.

Ellie says, "300 increased by 20% is less than 400 decreased by 10%."

Is Ellie correct? Show your working and explain.

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PERCENTAGE INCREASE AND DECREASE

GREATER DEPTH

NAME _____ CLASS _____ DATE _____

REASONING

1 Is each statement always, sometimes or never true? Circle your answer.

If it is sometimes true, give an example of when it is true and when it is not.

a) A multiplier between 0 and 1 gives a decrease. ALWAYS SOMETIMES NEVER

b) Increasing an amount by 100% doubles it. ALWAYS SOMETIMES NEVER

c) Multiplying by 1.5 increases an amount by 15%. ALWAYS SOMETIMES NEVER

d) An amount decreased by 10% is less than 90. ALWAYS SOMETIMES NEVER

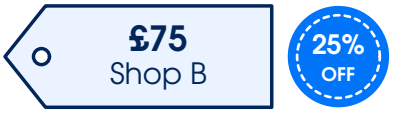
PROBLEM SOLVING

2 A gym membership costs the same each month. The monthly cost goes up by 15%, which adds £5.40 to the cost. What is the new monthly cost?

New monthly cost = £ ____

3 Two shops sell the same coat. Which shop sells it for less, and by how much?





Shop ____ is cheaper by ____

★ CHALLENGE FOR ALL

4 When x is increased by 20%, the answer is the same as when y is decreased by 20%. y is 20 more than x. Find x and y.

x = ____ y = ____

PERCENTAGE INCREASE AND DECREASE

ANSWERS

BUILDING BLOCKS

1 50% = £20 · 10% = £4 · 1% = £0.40 · 20% = £8 · 60% = £24
2 a) £6 b) £60 – £6 = £54
3 a) 3 cm b) 30 + 3 = 33 cm
4 a) DECREASE · 25% = £30, new price £90 b) INCREASE · 50% = 20, 60 people

SUPPORT

1 Decrease by 30%: 70%, 0.7 · Increase by 5%: 105%, 1.05 · Decrease by 15%: 85%, 0.85 · Increase by 150%: 250%, 2.5
2 a) £12, £40 – £12 = £28 b) 70%, £28 c) × 0.7 = £28
3 a) × 1.25 = £100 b) × 0.9 = £45 c) × 1.15 = 230 g d) × 0.65 = £78
4 15% increase → 1.15 · 1.5% decrease → 0.985 · 15% decrease → 0.85 · 1.5% increase → 1.015

CORE

1 a) 1.4 b) 1.04 c) 1.004 d) 0.65 e) 0.965 f) 0.995
2 a) £276 b) 598 kg c) £19.24 d) 1194 ml
3 a) 85 × 0.35 finds 35% of £85 (the amount taken off), not the new price; a 35% decrease needs × 0.65 b) £55.25
4 Not correct: 300 × 1.2 = 360 and 400 × 0.9 = 360, so the two amounts are equal.

GREATER DEPTH

1 a) Always b) Always c) Never (× 1.5 is a 50% increase) d) Sometimes, e.g. 90 × 0.9 = 81 (true) but 200 × 0.9 = 180 (not true)
2 15% = £5.40, so 1% = £0.36 and 100% = £36. New cost = £36 + £5.40 = £41.40
3 Shop A: £80 × 0.7 = £56. Shop B: £75 × 0.75 = £56.25. Shop A is cheaper by 25p.
4 1.2x = 0.8y and y = x + 20, so 1.2x = 0.8x + 16, 0.4x = 16: x = 40, y = 60 (both give 48).