Name & Surname: _____ Class: _____ Date: _____

Percentage Change

Increases, decreases and simple interest



About 50 minutes Level ★★★☆☆

Percentage Change in One Step

Use a **multiplier** to change an amount by a percentage in one step.

- For **increase**, multiply by $1 + \frac{p}{100}$. Example: 12% increase means × 1.12.
- For **decrease**, multiply by $1 - \frac{p}{100}$. Example: 8% decrease means × 0.92.
- To find the **original** value, divide the new value by the multiplier.
- For **simple interest**, interest = amount × rate × years. Total = amount + interest.

Task A

/10

Aim for 8 points or more from this recap grid.

1 point
Find a **quarter** of £48

1 point
Write 0.7 as a **percentage**

1 point
Work out 10% of £350 to find the **discount**

2 points
Work out 30% of 90 to find the **amount**

2 points
Write $\frac{3}{5}$ as a **decimal**

3 points
A phone costs £200 plus 20% VAT. Work out the **total** price.

My score: _____ out of 10 · Target: 6

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Increase and Decrease

Practise finding new amounts after a percentage change.

Task B

/12

Practise increases and decreases using multipliers.

WARM UP

1 Write the **multiplier** for a 15% increase.

Answer: _____

2 Write the **multiplier** for a 20% decrease.

Answer: _____

3 Increase £60 by 10% to find the **new** price.

Answer: _____

4 Decrease 80 kg by 25% to find the **new** weight.

Answer: _____

PRACTISE

5 Increase £240 by 12% to find the **new** price.

Answer: _____

6 Decrease £95 by 8% to find the **sale** price.

Answer: _____

7 A phone price of £180 increases by 5%, then decreases by 5%. A student says it is back to £180. Explain how you know the student is **wrong**.

Answer: _____

8 Increase 100 by 20% then decrease the result by 20%. Work out the **final** number.

Answer: _____

PROBLEM SOLVING

9 A jacket costs £45. Its price decreases by 30% in a **sale**. Work out the sale price.

Answer: _____

10 A class has 28 students. Numbers rise by 25% next term. How many **pupils** are there then?

Answer: _____

11 A bike costs £320. The shopkeeper increases the price by 15%. Work out the **new** price.

Answer: _____

12 Explain how you know that a 50% increase followed by a 50% decrease does not return to the **original**.

Answer: _____

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Find Original Values

Work backwards and calculate simple interest.

Key words

multiplier: number you multiply by for a percentage change

original value: amount before the change

percentage increase: rise shown as parts per hundred

percentage decrease: fall shown as parts per hundred

simple interest: extra money worked out only on the first amount

sale price: amount paid after a fall

Task C

/12

Work backwards to find original values and interest.

WARM UP

1 £70 is the price after a 40% increase. What **multiplier** was used?

Answer: _____

2 A price after a 10% decrease is £90. What **multiplier** was used?

Answer: _____

3 Work out the **interest** on £200 at 5% simple interest for 1 year.

Answer: _____

4 Work out the **total** amount after £500 earns 4% simple interest for 1 year.

Answer: _____

PRACTISE

5 After a 20% increase the price is £60. Work out the **original** price.

Answer: _____

6 After a 10% decrease the price is £81. Work out the **original** price.

Answer: _____

7 £400 is saved at 3% simple interest per year for 2 years. Work out the **interest**.

Answer: _____

8 Explain how you know dividing by 0.8 finds the price before a 20% **decrease**.

Answer: _____

PROBLEM SOLVING

9 A sale gives 25% off. A bag costs £30 in the **sale**. Work out the price before the sale.

Answer: _____

10 A savings account pays 6% simple interest per year. £250 is saved for 4 years. Work out the **total** amount.

Answer: _____

11 After a 12% increase a train ticket costs £56. Work out the **original** price.

Answer: _____

12 A student says to find the original after a 30% decrease you can increase the new price by 30%. Explain how you know the student is **wrong**.

Answer: _____

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Connect and Decode

Link fractions, decimals and percentages, then tackle an exam question.

⁒ Task D

/12

Complete the table by writing each value as a fraction, decimal and percentage.

Fraction	Decimal	Percentage
$\frac{1}{4}$		
	0.2	
		75%
$\frac{1}{10}$		
	0.05	
		110%

Task E

/3

Box the command, underline the topic, then answer the question.

1. Box the command word **2. Underline** the topic **3. Count** the marks: how many points?
4. Plan, then write

The price of a laptop is £540 after a 10% decrease. Calculate the original price. Show your working. (3)

Command word

.....

Topic

.....

Points I need

.....

Write the multiplier for a 10% decrease, 0.9. → Divide £540 by 0.9 to find the original. → Check by finding 10% of your answer.

My answer

.....

.....

.....

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Examples and Meanings

Follow worked methods and match key terms.

Task F

/2

Follow each example, then try a similar question.

WORKED EXAMPLE

Work out the original price if £69 is the price after a 15% increase.

1. Multiplier for 15% increase is $1 + \frac{15}{100} = 1.15$.
2. Original = new ÷ multiplier.
3. 69 ÷ 1.15 = 60, so original is £60.

Answer: £60

YOUR TURN

Work out the original price if £92 is the price after a 15% increase.

Answer: _____

WORKED EXAMPLE

£300 is saved at 4% simple interest per year for 3 years. Work out the total amount.

1. Interest for 1 year = 4% of £300 = £12.
2. Interest for 3 years = 3 × £12 = £36.
3. Total = £300 + £36 = £336.

Answer: £336

YOUR TURN

£500 is saved at 5% simple interest per year for 2 years. Work out the total amount.

Answer: _____

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Percentage Change

Task G

Example done for you

/4

Match each term to its correct meaning.

1	Multiplier	◯	Extra money worked out only on the first amount
2	Original value	◯	A fall given as parts per hundred
3	Simple interest	(1)	The number you multiply by for a percentage change
4	Percentage increase	◯	The amount before any percentage change
5	Percentage decrease	◯	A rise given as parts per hundred

How did I do?

Circle a face for each line.

I can find a new amount after a percentage increase or decrease.	☹	😐	☺
I can work backwards to find the original value.	☹	😐	☺
I can calculate simple interest.	☹	😐	☺

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Answer sheet: Percentage Change

Task A

1. £12
2. 70%
3. £35
4. 27
5. 0.6
6. £240

Task B

1. 1.15
2. 0.8
3. £66
4. 60 kg
5. £268.80
6. £87.40
7. The student is wrong. After the increase it is £189, then 5% off £189 is £179.55, not £180.
8. 96
9. £31.50
10. 35
11. £368
12. It does not return because the decrease is taken from the larger amount. For example £100 to £150 then to £75, which is 75% of the start.

Task C

1. 1.4
2. 0.9
3. £10
4. £520
5. £50
6. £90
7. £24
8. New price = original × 0.8, so original = new ÷ 0.8.
9. £40
10. £310
11. £50
12. The student is wrong because the percentages use different starting amounts. For example £100 less 30% is £70, but £70 plus 30% is £91, not £100.

Task D

1. $\frac{1}{4}$ = 0.25 = 25%
2. $\frac{1}{5}$ = 0.2 = 20%
3. $\frac{3}{4}$ = 0.75 = 75%
4. $\frac{1}{10}$ = 0.1 = 10%
5. $\frac{1}{20}$ = 0.05 = 5%
6. $\frac{11}{10}$ = 1.1 = 110%

Task E

Command word: Calculate

Topic: original value after a percentage decrease

Points: Write the multiplier for a 10% decrease, 0.9. Divide £540 by 0.9 to find the original. Check by finding 10% of your answer.

Task F

1. £80
2. £550

Task G

1. Multiplier → The number you multiply by for a percentage change
2. Original value → The amount before any percentage change
3. Simple interest → Extra money worked out only on the first amount
4. Percentage increase → A rise given as parts per hundred
5. Percentage decrease → A fall given as parts per hundred

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