MATHSDIY

SOLUTIONS

GCSE TOPIC BOOKLET
PERCENTAGE CHANGE

all the same formula

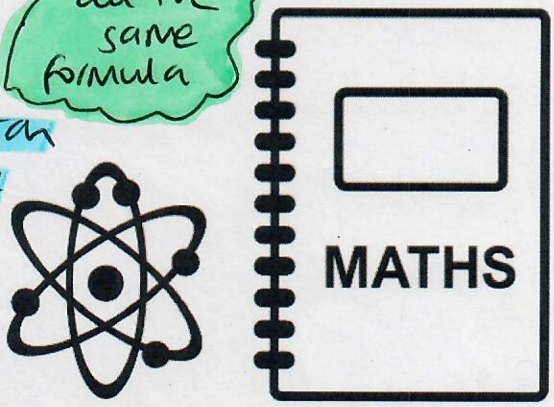
% improvement

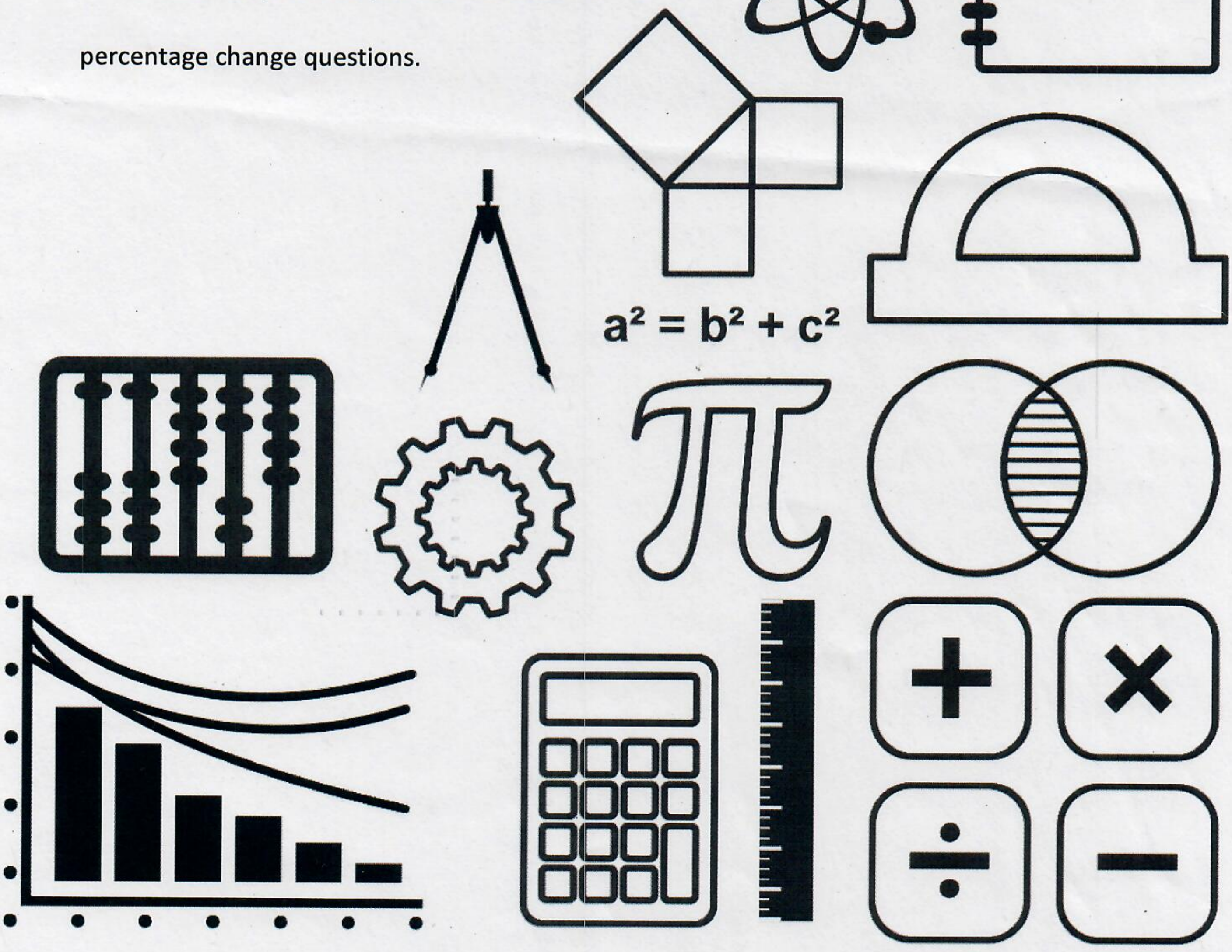
$$\boxed{\%\ Change = \frac{Change}{Original} \times 100}$$

% profit
% loss
% reduction
% increase
% discount
% appreciation
% depreciation

This is the **ONLY** formula you need. It works for all

percentage change questions.





MATHSDIY

1. The cost of a stand season ticket last year was £200. This year it has increased to £250. Find the percentage increase in the cost of the stand season ticket.

Change = £250 - £200 = £50

% Change = $\frac{50}{200} \times 100 = 25\%$

% increase = 25%

(3)

2. The cost of a weekly travel ticket increases from £12 to £15. Find the percentage increase in the cost of the weekly travel ticket.

Change = £15 - £12 = £3

% Change = $\frac{3}{12} \times 100 = 25\%$

% increase = 25%

(3)

3. The price of a DVD is reduced from £12 to £10.20. What is the percentage reduction?

Change = £12 - £10.20 = £1.80

% Change = $\frac{1.80}{12} \times 100 = 15\%$

% reduction = 15%

(3)

4. A newspaper claimed that its circulation had increased from 3 560 000 to 3 755 800. What percentage increase is this?

Change = 3,755,800 - 3,560,000 = 195,800

% Change = $\frac{195,800}{3,560,000} \times 100 = 5.5\%$

% increase = 5.5%

(3)

5. The value of a car depreciates from £8000 to £7040. What percentage depreciation is this?

Change = £8000 − £7040 = £960

% Change = $\frac{960}{8000} \times 100$ = 12%

% Depreciation = 12%

(3)

6. George invests £3000 in shares. Unfortunately the shares reduce in value to £2640. What is the percentage reduction?

Change = £3000 − £2640 = £360

% Change = $\frac{360}{3000} \times 100$ = 12%

% Reduction = 12%

(3)

7. Noah owns an antique French mirror. He bought it for £320 and sells it at a profit some years later for £528. What is Noah's percentage profit?

Change = 528 − 320 = £208

% Change = $\frac{208}{320} \times 100$ = 65 %

% Profit = 65 %

(3)

8. The population of a country increases from 56 000 000 to 59 000 000. What percentage increase is this?

Change = 59,000,000 − 56,000,000 = 3,000,000

% Change = $\frac{3,000,000}{56,000,000} \times 100$ = 5.357... = 5.36%

% Increase = 5.36% (2dp)

(3)

9. Natalia paid £245 800 for her house. It is now worth £335 000. What is the percentage appreciation? Give your answer to one decimal place.

Change = £335,000 − £245,800 = £89,200

% Change = $\frac{89,200}{245,800} \times 100 = 36.2896\ldots = 36.3\%$

% Appreciation = 36.3% (1dp)

(3)

10. I.T. equipment costing £2400, is only worth £1800 the following year. What is the percentage depreciation?

Change = £2400 − £1800 = £600

% Change = $\frac{600}{2400} \times 100 = 25\%$

% Depreciation = 25%

(3)

11. A photo shoot costing £385 is reduced to £315 due to a lack of bookings. What is the percentage reduction?

Change = £385 − £315 = £70

% Change = $\frac{70}{385} \times 100 = 18.\dot{1}\dot{8} = 18.2\%$

% Reduction = 18.2% (1dp)

(3)

12. Emma bought a sports car for £42,000. She sold it 3 years later for £28,000. What is the percentage loss?

Change = £42,000 − £28,000 = £14,000

% Change = $\frac{14,000}{42,000} \times 100 = 33.\dot{3}\%$

% Loss = $33.\dot{3}\%$ ($33\frac{1}{3}\%$)

(3)

13. George scored 48 in his maths mock. When he re-sat the exam he improved his mark to 60. What is his percentage improvement?

Change = 60 − 48 = 12

% change = $\frac{12}{48} \times 100 = 25\%$

% improvement = 25%

(3)

14. A flight attendant gets a discount. He books a flight to America that should cost £800 but he only pays £520. What is his percentage discount?

Change = £800 − £520 = £280

% change = $\frac{280}{800} \times 100 = 35\%$

% discount = 35%

(3)

15. An online book retailer has a sale. A book that used to cost £15 is now on sale for £9.75. What is the percentage reduction?

Change = 15 − 9.75 = 5.25

% change = $\frac{5.25}{15} \times 100 = 35\%$

% reduction = 35%

(3)

16. Alex paid £14 500 for a boat. Three years later he sells it for £9000. What is his percentage loss? Give your answer to two decimal places.

Change = £14,500 − £9,000 = £5,500

% change = $\frac{5,500}{14,500} \times 100 = 37.931... = 37.93\%$

% Loss = 37.93%

(3)