

GCSE Foundation maths worksheet

GCSE Foundation | Years 10-11

Name _____ Class _____ Date _____

Score _____ / 24

Section A (questions 1-12): no calculator. Section B (questions 13-24): calculator allowed. Show your working and write each answer in the box.

Example: solve $5x + 1 = 2x + 16$. Subtract $2x$: $3x + 1 = 16$. Subtract 1 : $3x = 15$, so $x = 5$.

Section A • Non-calculator

1. Work out 3.6×4 .

2. Work out $\frac{2}{3}$ of 45.

3. Write $\frac{7}{20}$ as a percentage.

4. Write these numbers in order, smallest first: 0.5, -2 , $\frac{1}{4}$, -0.7

5. Expand and simplify $3(x + 4) - 2(x - 1)$.

6. Solve $7x - 3 = 4x + 9$.

7. Work out the value of $5a^2$ when $a = 3$.

8. Find the lowest common multiple (LCM) of 6 and 8.

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9. Share 72 in the ratio 5 : 3.

Answer

10. Find the size of each interior angle of a regular octagon.

Answer

11. Find the n th term of the sequence 4, 7, 10, 13, ...

Answer

12. A spinner lands on red, blue or green. $P(\text{red}) = 0.3$ and $P(\text{blue}) = 0.45$. Find $P(\text{green})$.

Answer

Section B • Calculator allowed

13. Work out $\sqrt{(17.6^2 - 8.5^2)}$. Give your answer to 2 decimal places.

Answer

14. A television costs £480 plus VAT at 20%. Find the total cost.

Answer

15. £3500 is invested at 2.5% compound interest per year. Find its value after 3 years.

Answer

16. A trapezium has parallel sides of 7 cm and 11 cm and a height of 5 cm. Find its area.

Answer

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- 17.** Find the area of a circle with radius 6.5 cm. Give your answer to 1 decimal place.

Answer

- 18.** A right-angled triangle has shorter sides of 6 cm and 8.5 cm. Find the hypotenuse to 1 decimal place.

Answer

- 19.** Pasta costs £1.85 for 500 g or £2.70 for 750 g. Which pack is better value? Show your working.

Answer

- 20.** A cyclist rides 18 km in 45 minutes. Find the average speed in km/h.

Answer

- 21.** Values 1, 2, 3, 4 have frequencies 3, 5, 8, 4. Find the mean.

Answer

- 22.** Convert 2.4 m² to cm².

Answer

- 23.** After a 15% increase, a price is £92. Find the price before the increase.

Answer

- 24.** Solve $2x + 5 \geq 17$.

Answer

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Check each answer and its method. Equivalent forms are correct unless a question asks for a particular form or degree of accuracy.

Section A · Non-calculator

1. 14.4

$36 \times 4 = 144$. There is one decimal place in the question, so 14.4.

2. 30

Find one third: $45 \div 3 = 15$. Two thirds is $2 \times 15 = 30$.

3. 35%

Multiply the top and bottom by 5 to make 35/100, which is 35%.

4. -2, -0.7, 1/4, 0.5

Negative numbers are smallest: -2 is less than -0.7. Then $1/4 = 0.25$, which is less than 0.5.

5. $x + 14$

$3x + 12 - 2x + 2 = x + 14$. Take care: $-2 \times -1 = +2$.

6. $x = 4$

Subtract 4x: $3x - 3 = 9$. Add 3: $3x = 12$, so $x = 4$.

7. 45

Square first: $3^2 = 9$. Then $5 \times 9 = 45$.

8. 24

Multiples of 8: 8, 16, 24 ... The first one that 6 also divides is 24.

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9. 45 and 27

$5 + 3 = 8$ parts. One part is $72 \div 8 = 9$, so $5 \times 9 = 45$ and $3 \times 9 = 27$.

10. 135°

Each exterior angle is $360^\circ \div 8 = 45^\circ$. Interior angle = $180^\circ - 45^\circ = 135^\circ$.

11. $3n + 1$

The common difference is 3, so start with $3n$. $3 \times 1 = 3$ and the first term is 4, so add 1.

12. 0.25

The probabilities sum to 1: $1 - 0.3 - 0.45 = 0.25$.

Section B · Calculator allowed

13. 15.41

$17.6^2 - 8.5^2 = 309.76 - 72.25 = 237.51$, and $\sqrt{237.51} = 15.411\dots$, so 15.41.

14. £576

20% of £480 is £96, so $£480 + £96 = £576$. Or use 480×1.2 .

15. £3769.12

Value = $3500 \times 1.025^3 = 3769.117\dots$, so £3769.12 to the nearest penny.

16. 45 cm^2

Area = $\frac{1}{2}(a + b)h = \frac{1}{2} \times (7 + 11) \times 5 = 45 \text{ cm}^2$.

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17. 132.7 cm²

Area = $\pi r^2 = \pi \times 6.5^2 = 132.73\dots$, so 132.7 cm².

18. 10.4 cm

$c^2 = 6^2 + 8.5^2 = 36 + 72.25 = 108.25$, so $c = \sqrt{108.25} = 10.40\dots$ cm.

19. 750 g pack

Cost per 100 g: $\text{£}1.85 \div 5 = 37\text{p}$ and $\text{£}2.70 \div 7.5 = 36\text{p}$. The 750 g pack is cheaper per gram.

20. 24 km/h

45 minutes = 0.75 hours. Speed = $18 \div 0.75 = 24$ km/h.

21. 2.65

$\Sigma fx = 3 + 10 + 24 + 16 = 53$ and $\Sigma f = 20$, so mean = $53 \div 20 = 2.65$.

22. 24 000 cm²

$1 \text{ m}^2 = 100 \times 100 = 10\,000 \text{ cm}^2$, so $2.4 \times 10\,000 = 24\,000 \text{ cm}^2$.

23. £80

The new price is 115% of the original: $\text{£}92 \div 1.15 = \text{£}80$.

24. $x \geq 6$

Subtract 5: $2x \geq 12$. Divide by 2: $x \geq 6$.
