Calculator

KS4 Mastery: Foundation Booklet

2

BEYOND MATHS

Calculator

KS4 Mastery: Foundation Booklet 2

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Week 1

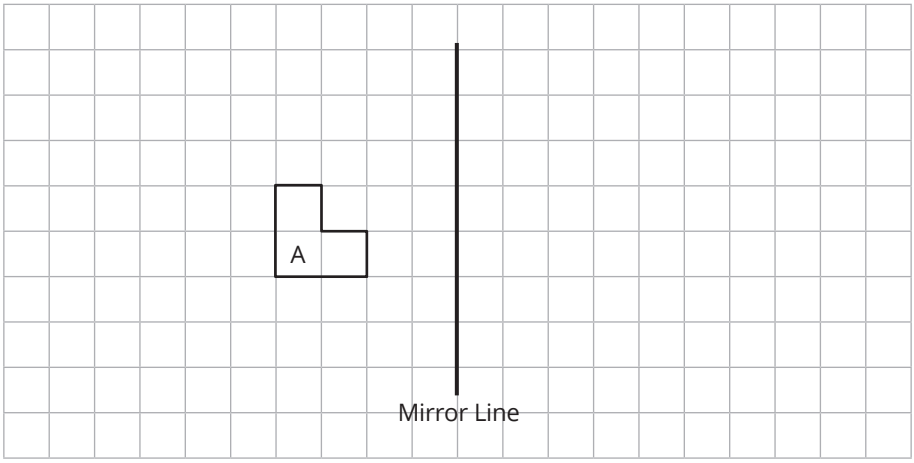
1. Work out the 15th term in the sequence whose n^{th} term is $4n + 7$

2. Find the cube root of 6859.

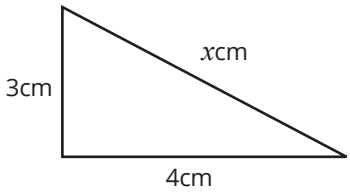
3. Round 17.2 correct to the nearest whole number.

4. The cost, C, in pounds of hiring a van for d days is given by the formula $C = 20 + 30d$. Work out the cost of hiring the van for 8 days.

5. Reflect shape A in the mirror line.



6. Find the missing length in the right-angled triangle.



7. Find the mean of the following list of numbers:

   1, 3, 3, 6, 7

8. Ella changed £100 into euros. The exchange rate was £1:€1.05. How many euros did she get?

9. Find 15% of £80.

10. A number, x, rounded to the nearest whole number, is 7. Write down the error interval for x.

11. 80 students were asked what their favourite subject is. $\frac{2}{5}$ of the students said their favourite subject is maths. How many students said their favourite subject is maths?

12. Does the line $y = 2x$ pass through the point (4, 8)?

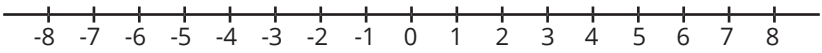
13. Find the highest common factor of 15 and 20.

14. Work out $(2 \times 10^3) \times (3 \times 10^5)$. Give your answer in standard form.

15. Factorise $x^2 + 4x + 3$

16. Two different types of washing powder are on sale. Brand A has a mass of 500g and costs £3.70. Brand B has a mass of 1kg and costs £7.25. Which brand offers better value for money?

17. Represent the inequality $x > 2$ on the number line.



18. Change 4cm to mm.

19. Find the area of a circle whose radius is 5cm.

20. Find the n^{th} term of the sequence whose first four terms are 4, 6, 8, 10.

Week 2

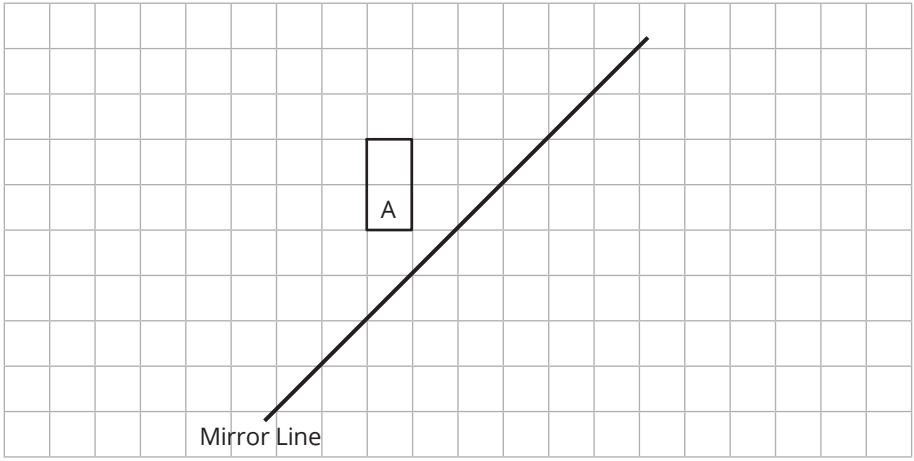
1. Work out the 8th term in the sequence whose n^{th} term is $2n - 10$

2. Find the square root of 3844.

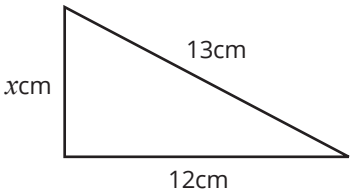
3. Round 3.782 to 1 decimal place.

4. The cost, C, in pounds of hiring a van for d days is given by the formula $C = 10 + 45d$. Work out the cost of hiring the van for 5 days.

5. Reflect shape A in the mirror line.



6. Find the missing length in the right-angled triangle.



7. Find the mean of the following list of numbers:

   2, 5, 6, 3, 8, 1, 3

8. Ella changed £40 into euros. The exchange rate was £1:€1.12.
   How many euros did she get?

9. Find 12% of £95.

10. A number, x, rounded to the nearest whole number, is 20.
    Write down the error interval for x.

11. 120 students were asked what their favourite subject is. $\frac{3}{4}$ of the students said their favourite subject is maths. How many students said their favourite subject is maths?

12. Does the line $y = x + 5$ pass through the point (1, 3)?

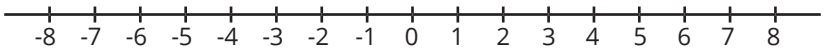
13. Find the highest common factor of 40 and 110.

14. Work out $(3.4 \times 10^2) \times (1.5 \times 10^3)$. Give your answer in standard form.

15. Factorise $x^2 + 7x + 10$

16. Two different types of washing powder are on sale. Brand A has a mass of 200g and costs £1.25. Brand B has a mass of 1kg and costs £6.00. Which brand offers better value for money?

17. Represent the inequality $x \leq 5$ on the number line.



18. Change 5kg to grams.

19. Find the area of a circle whose diameter is 8cm.

20. Find the n^{th} term of the sequence whose first four terms are 10, 14, 18, 22.

Week 3

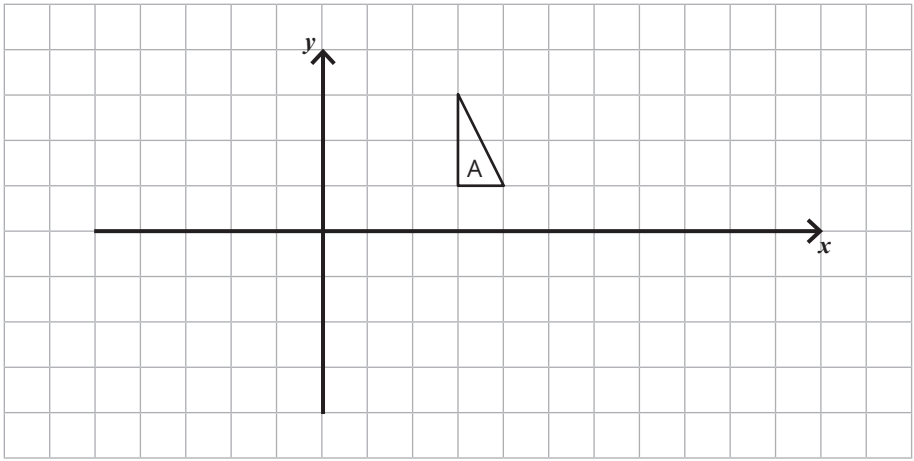
1. Work out the 15th term in the sequence whose n^{th} term is $18 - n$

2. Find the cube root of 531.441.

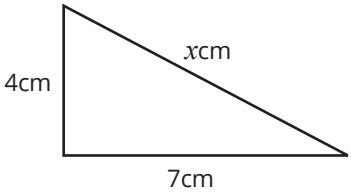
3. Round 18.231 to 2 decimal places.

4. The cost, C, in pounds of hiring a van for d days is given by the formula $C = 15 + 18d$. Work out the cost of hiring the van for 4.5 days.

5. Reflect shape A in the x-axis.



6. Find the missing length in the right-angled triangle.



7. Find the mean of the following list of numbers:

   3.5, 1.2, 4.7, 5.5, 9.3

8. Ella changed £90 into euros. The exchange rate was £1:€0.97.
   How many euros did she get?

9. Find 2.5% of £110.

10. A number, x, rounded to one decimal place, is 4.7.
    Write down the error interval for x.

11. 120 students were asked what their favourite subject is. $\frac{1}{10}$ of the students said their favourite subject is maths. How many students said their favourite subject is **not** maths?

12. Does the line $y = 3x + 1$ pass through the point (4, 15)?

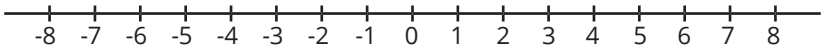
13. Find the highest common factor of 100 and 180.

14. Work out $(2.03 \times 10^{-2}) \times (4.7 \times 10^{4})$. Give your answer in standard form.

15. Factorise $x^2 + 2x - 15$

16. Two different types of washing powder are on sale. Brand A has a mass of 200g and costs £1.20. Brand B has a mass of 500g and costs £3.80. Which brand offers better value for money?

17. Represent the inequality $x > -3$ on the number line.



18. Change 9mm to cm.

19. Find the circumference of a circle whose diameter is 10cm.

20. Find the n^{th} term of the sequence whose first four terms are 1, 6, 11, 16.

Week 4

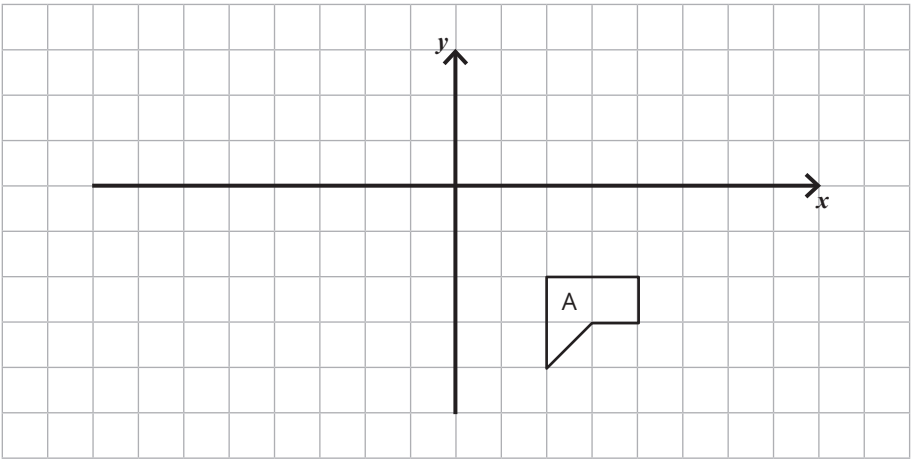
1. Work out the 20th term in the sequence whose n^{th} term is n^2

2. Evaluate $\sqrt[4]{2401}$.

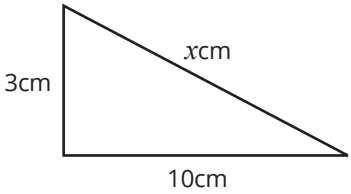
3. Round 4.1992 to 2 decimal places.

4. The cost, C, in pounds of hiring a van for d days is given by the formula $C = 110 + 12d$. Work out the cost of hiring the van for two weeks.

5. Reflect shape A in the y-axis.



6. Find the missing length in the right-angled triangle.



7. Find the mean of the following list of numbers:

   -1, -6, 4, 3

8. Ella changed €100 into pounds. The exchange rate was £1:€1.15. How much did she get?

9. Find 0.5% of £20.

10. A number, x, rounded to one decimal place, is 9.0. Write down the error interval for x.

11. 180 students were asked what their favourite subject is. $\frac{2}{3}$ of the students said their favourite subject is maths. How many students said their favourite subject is not maths?

12. Does the line $y = 2x - 3$ pass through the point (7, 11)?

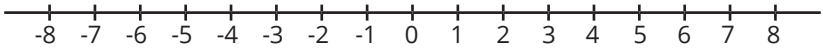
13. Find the lowest common multiple of 15 and 20.

14. Work out $(6 \times 10^5) \times (3 \times 10^4)$. Give your answer in standard form.

15. Factorise $x^2 - x - 20$

16. Two different types of washing powder are on sale. Brand A has a mass of 400g and costs £3.00. Brand B has a mass of 500g and costs £3.60. Which brand offers better value for money?

17. Represent the inequality $x < -2$ on the number line.



18. Change 18cm to m.

19. Find the circumference of a circle whose radius is 4cm.

20. Find the n^{th} term of the sequence whose first four terms are -2, 1, 4, 7.

Week 5

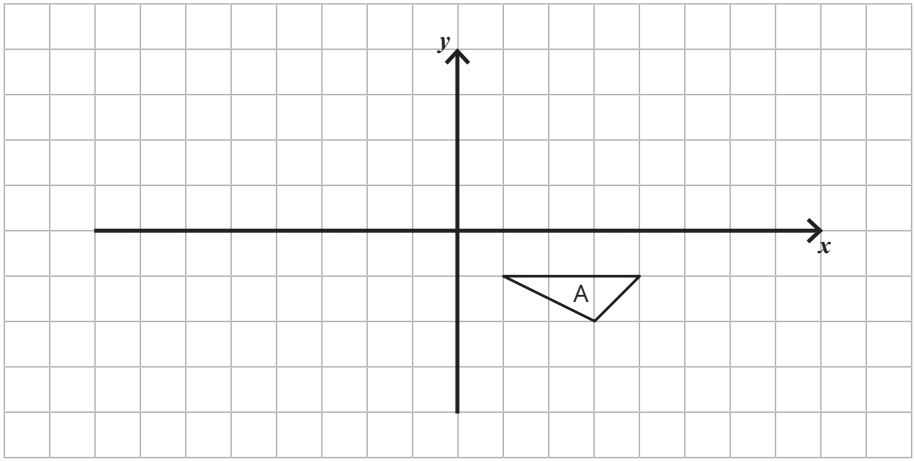
1. Work out the 7th term in the sequence whose n^{th} term is $8 - n^2$

2. Evaluate $(\sqrt[3]{343})^2$.

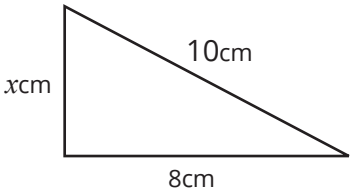
3. Round 241 to 1 significant figure.

4. The cost, C, in pounds of hiring a van for d days is given by the formula $C = 8d$. Work out the number of days hire that results in a cost of £56.

5. Reflect shape A in the x-axis.



6. Find the missing length in the right-angled triangle.



7. Find the mean of the following list of numbers:

   2.1, 3.7, 4.05, 1.99, 2.8

8. Ella changed €80 into pounds. The exchange rate was £1:€1.20. How much did she get?

9. Increase £90 by 8%.

10. A number, x, rounded to two decimal places, is 0.74. Write down the error interval for x.

11. 240 students were asked what their favourite subject is. $\frac{1}{5}$ of the students said their favourite subject is maths and $\frac{1}{3}$ of the students said their favourite subject is English. The rest said their favourite subject is French. How many students said their favourite subject is French?

12. Does the curve $y = x^2$ pass through the point (1, 4)?

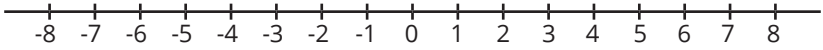
13. Find the lowest common multiple of 45 and 70.

14. Work out $(2 \times 10^3) \div (4 \times 10^5)$. Give your answer in standard form.

15. Factorise $x^2 - 16$

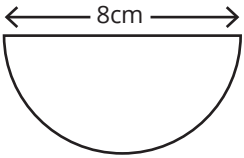
16. Three different types of washing powder are on sale. Brand A has a mass of 250g and costs £2.00. Brand B has a mass of 600g and costs £4.80. Brand C has a mass of 1kg and costs £7.50. Which brand offers better value for money?

17. Represent the inequality $1 < x < 5$ on the number line.



18. Change 0.4m to mm.

19. Find the area of the semi-circle shown.



20. Find the n^{th} term of the sequence whose first four terms are 0.1, 0.2, 0.3, 0.4.

Week 6

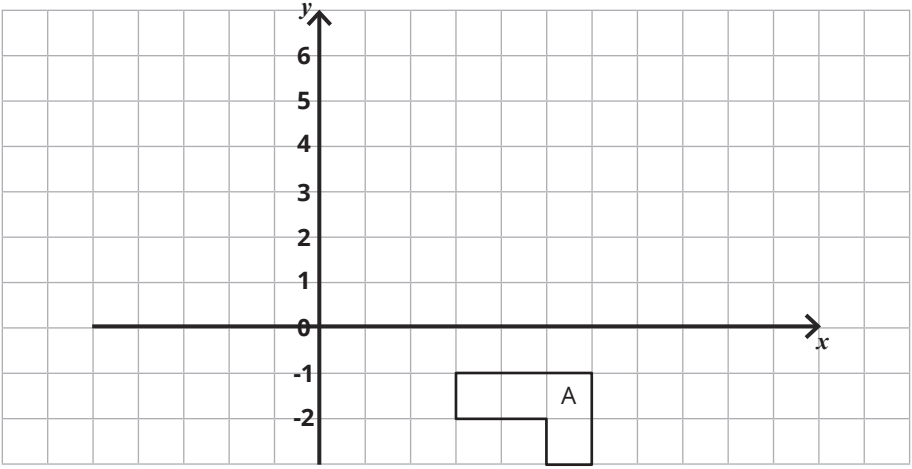
1. Work out the 5th term in the sequence whose n^{th} term is $4 - 0.1n^2$

2. Evaluate $\left(\sqrt{169}\right)^3$.

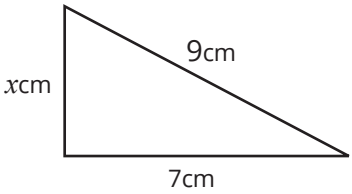
3. Round 7564 to 1 significant figure.

4. The cost, C, in pounds of hiring a van for d days is given by the formula $C = 2d + 45$. Work out the number of days hire that results in a cost of £83.

5. Reflect shape A in the line $y = 2$.



6. Find the missing length in the right-angled triangle.



7. Find the mean of the following list of numbers:

   -0.3, -1, -7, -2, -9, 17, 12

8. Ella changed £100 into euros. She spent €45 and then changed the rest back into pounds. The exchange rate, each time, was £1:€1.20. How many pounds does she now have?

9. Increase £72 by 100%.

10. A number, x, rounded to one significant figure, is 9. Write down the error interval for x.

11. In a school, $\frac{1}{5}$ of the students said that their favourite subject is English. There were 40 students who said that their favourite subject is English. How many students were in the school altogether?

12. Does the curve $y = x^2$ pass through the point (3, 9)?

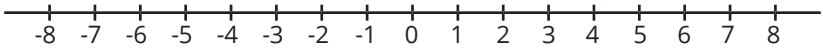
13. Find the lowest common multiple of 10, 12 and 20.

14. Work out $(5 \times 10^3) \div (8 \times 10^{-3})$. Give your answer in standard form.

15. Factorise $x^2 - 49$

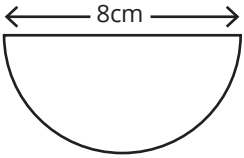
16. Three different types of washing powder are on sale. Brand A has a mass of 100g and costs £1.20. Brand B has a mass of 320g and costs £3.50. Brand C has a mass of 1.5kg and costs £16. Which brand offers better value for money?

17. Represent the inequality $-2 \leq x < 3$ on the number line.



18. Change $8cm^2$ to mm^2.

19. Find the perimeter of the semi-circle shown.



20. Find the n^{th} term of the sequence whose first four terms are 20, 17, 14, 11.

Week 7

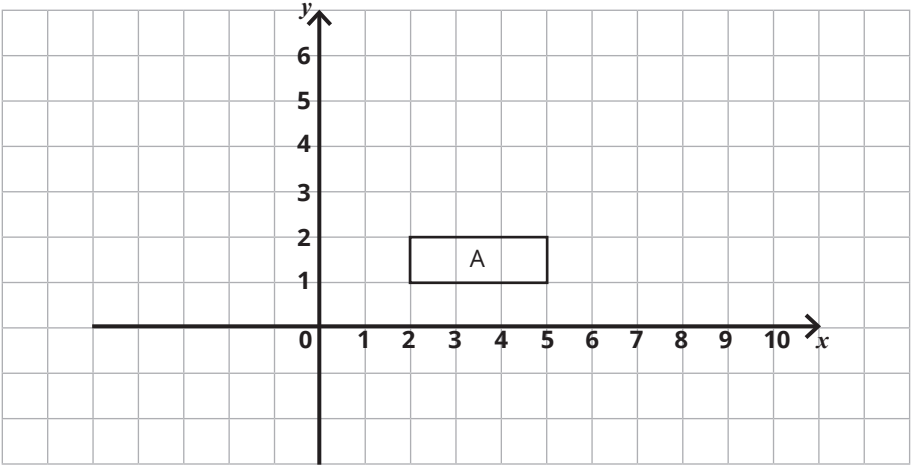
1. Work out the first three terms in the sequence whose n^{th} term is $3 - \frac{1}{2}n$

2. Evaluate $\frac{12^2}{\sqrt{25}}$.

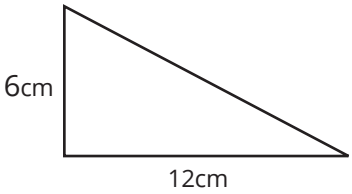
3. Round 0.03297 to 2 significant figures.

4. The cost, C, in pounds of hiring a van for d days is given by the formula $C = 8.5d - 12$. Work out the number of days hire that results in a cost of £39.

5. Reflect shape A in the line $y = x$.



6. Find the perimeter of the right-angled triangle.



7. The mean of this list of numbers is 7.2. Work out the value of x.

   6, x, 9, 8, 4

8. Ella changed £250 into euros. She spent €125 and then changed the rest back into pounds. The exchange rate was £1:€1.10. How many pounds does she now have?

9. Increase £19 by 250%.

10. A number, x, rounded to two significant figure, is 370. Write down the error interval for x.

11. In a school, $\frac{2}{3}$ of the students said that their favourite subject is English. There were 100 students who said that their favourite subject is English. How many students were in the school altogether?

12. Does the curve $y = x^2 + 5x$ pass through the point (2, 14)?

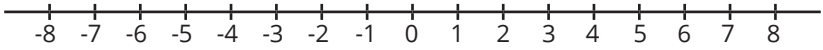
13. Find the lowest common multiple of 18, 24 and 40.

14. Work out $(4 \times 10^{-5})^2$. Give your answer in standard form.

15. Factorise $4x^2 - 25$

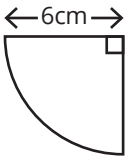
16. Three different types of washing powder are on sale. Brand A has a mass of 0.1kg and costs £1.80. Brand B has a mass of 450g and costs £7.20. Brand C has a mass of 1.5kg and costs £30. Which brand offers better value for money?

17. Represent the inequality $-7 \leq x \leq 4$ on the number line.



18. Change $1.5m^2$ to cm^2.

19. Find the perimeter of the shape shown.



20. Find the n^{th} term of the sequence whose first four terms are 28, 21, 14, 7.

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