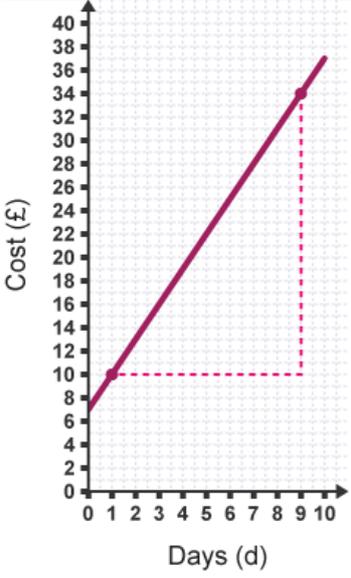
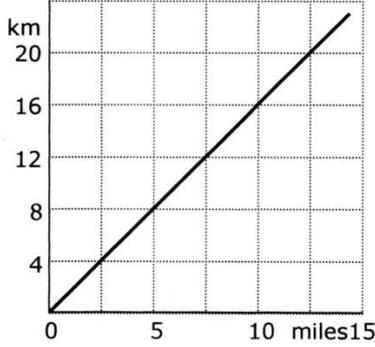
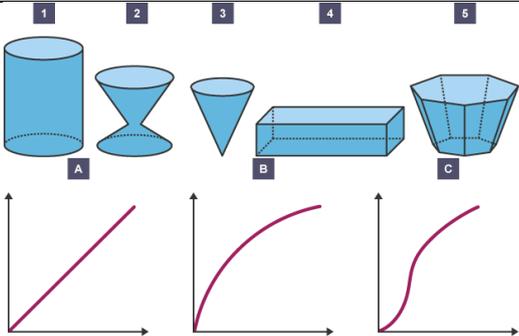


Year 8 Sets 3 and 4 Autumn Half Term 2

| Topic/Skill | Definition/Tips | Example |
|----------------------------|--|--|
| 1. Expression | A mathematical statement written using symbols, numbers or letters , | $3x + 2$ or $5y^2$ |
| 2. Equation | A statement showing that two expressions are equal | $2y - 17 = 15$ |
| 4. Simplifying Expressions | Collect 'like terms' . Be careful with negatives. x^2 and x are not like terms. | $2x + 3y + 4x - 5y + 3$ $= 6x - 2y + 3$ $3x + 4 - x^2 + 2x - 1 = 5x - x^2 + 3$ |
| 5. x times x | The answer is x^2 not $2x$. | Squaring is multiplying by itself, not by 2. |
| 6. $p \times p \times p$ | The answer is p^3 not $3p$ | If $p=2$, then $p^3=2 \times 2 \times 2=8$, not $2 \times 3=6$ |
| 7. $p + p + p$ | The answer is $3p$ not p^3 | If $p=2$, then $2+2+2=6$, not $2^3 = 8$ |
| 8. Expand | To expand a bracket, multiply each term in the bracket by the expression outside the bracket. | $3(m + 7) = 3m + 21$ |
| 9. Factorise | The reverse of expanding . Factorising is writing an expression as a product of terms by ' taking out ' a common factor . | $6x - 15 = 3(2x - 5)$, where 3 is the common factor. |
| 10. Solve | To find the answer /value of something Use inverse operations on both sides of the equation (balancing method) until you find the value for the letter. | Solve $2x - 3 = 7$ Add 3 on both sides $2x = 10$ Divide by 2 on both sides $x = 5$ |
| 11. Inverse | Opposite | The inverse of addition is subtraction. The inverse of multiplication is division. |

| | | |
|---|---|---|
| <p>12. Real Life Graphs</p> | <p>Graphs that are supposed to model some real-life situation.</p> <p>The actual meaning of the values depends on the labels and units on each axis.</p> <p>The gradient might have a contextual meaning.</p> <p>The y-intercept might have a contextual meaning.</p> <p>The area under the graph might have a contextual meaning.</p> |  <p>A graph showing the cost of hiring a ladder for various numbers of days.</p> <p>The gradient shows the cost per day. It costs £3/day to hire the ladder.</p> <p>The y-intercept shows the additional cost/deposit/charged (something not linked to how long the ladder is hired for). The additional cost is £7.</p> |
| <p>13. Conversion Graph</p> | <p>A line graph to convert one unit to another.</p> <p>Can be used to convert units (eg. miles and kilometres) or currencies (\$ and £)</p> <p>Find the value you know on one axis, read up/across to the conversion line and read the equivalent value from the other axis.</p> | <p>Conversion graph miles ↔ kilometres</p>  <p>8 km = 5 miles</p> |
| <p>14. Depth of Water in Containers</p> | <p>Graphs can be used to show how the depth of water changes as different shaped containers are filled with water at a constant rate.</p> |  |

15. Distance-Time Graphs

You can find the **speed** from the **gradient** of the line (Distance \div Time)
The steeper the line, the quicker the speed.
A **horizontal** line means the object is not moving (**stationary**).

