

Keeping Everything in Flux

1. Solve by factorising:
 - (a) $x^2 + 4x = 5$.
 - (b) $c^2 + 4 = 5c$.
 - (c) $k^2 = 2k + 3$.
 - (d) $2x^2 + 5x = 7$.
 - (e) $4t^2 = 7t + 2$.
2. In the triangle ABC , angle $\hat{A}BC$ is a right angle. Length $AB = 7$ and $AC = 9$. Find angle $\hat{A}CB$.
3. In the triangle ABC , angle $\hat{A}BC$ is a right angle. Length $AB = 11$ and $BC = 9$. Find angle $\hat{C}AB$.
4. In the triangle ABC , angle $\hat{A}BC$ is a right angle. Length $AB = 8.2$ and $\hat{A}CB = 27^\circ$. Find length BC .
5. Find the intersection of the lines $y = 4x - 1$ and $2x + 3y = 4$. [Remember that finding the intersection of two lines is done by treating the lines as simultaneous equations.]
6. What is the gradient of the line $y = 3x + 2$?
7. What is the gradient of the line $2x + y = 5$?
8. What is the gradient of the line $4x - 3y = 7$?
9. A line crosses the x -axis at $(3, 0)$ and $(0, -8)$.
 - (a) Find its equation in the form $y = mx + c$.
 - (b) Now rearrange your answer in the form $ax + by + c = 0$ where a , b and c are integers.
10. A line passes through the points $(3, 2)$ and $(7, 1)$.
 - (a) Find the gradient between the two points.
 - (b) Using $y - y_1 = m(x - x_1)$, find its equation in the form $y = mx + c$.
 - (c) Now rearrange your answer in the form $ax + by + c = 0$ where a , b and c are integers.
11. A line passes through the points $(5, 1)$ and $(7, 5)$. Find its equation in the form $ax + by + c = 0$ where a , b and c are integers.
12. A circle has circumference 20cm. Find its radius.
13. A circle has area 30cm^2 . Find its circumference.