

- 8 The straight line joining the points (a, a) and $(3, 4)$ is of length 5 units. Find the two possible values of a .
- 9 Line l has gradient 3. Find the gradient of a line perpendicular to l .
- 10 Copy and complete the table

Gradient of line 1	Gradient of line 2	Information
5	<input type="text"/>	Lines are parallel
2	<input type="text"/>	Lines are perpendicular
<input type="text"/>	$-\frac{2}{3}$	Lines are parallel
-5	<input type="text"/>	Lines are perpendicular
<input type="text"/>	$\frac{3}{4}$	Lines are perpendicular

- 11 PQR is a right-angled triangle with vertices at $P(2, 1)$, $Q(4, 3)$, and $R(8, t)$. Given that angle PQR is 90° , find t .
- 12 a Prove that the points $A(1, 2)$, $B(3, 7)$ and $C(8, 5)$ could lie at three corners of a square.
 b Find the coordinates of the fourth corner of this square.
 c Find the coordinates of the centre of the square.
 d Find the area of the square.
- 13 A triangle has vertices $A(1, 1)$, $B(a, 4)$ and $C(6, 2)$. The triangle is isosceles with $AB = BC$. Find the value of a .
- 14 A triangle has vertices $P(-2, 2)$, $Q(q, 0)$ and $R(5, 3)$.
 a The side PQ is twice as long as side QR. Find the possible values of q .
 b Show that triangle PQR is right-angled when $q = 4$.
 c When $q = 4$ find the coordinates of the centre of the circle which passes through P, Q and R.

The equation of a straight line

- The line $y = mx + c$ has gradient m and c is the y intercept.
 - In the diagram the line $y = 2x + 1$ is shown. The gradient is 2 and the y intercept is 1.
 - Similarly the line $y = -4x + 11$ has gradient -4 and y intercept 11.

