

Rationalise the Denominator

Show that

$$\frac{2}{3 + \sqrt{5}} = \frac{3 - \sqrt{5}}{2}$$

Changing the Subject

Make x the subject.

1) $c(a + x) = b$

2) $u(x + v) = w + vx$

Quick Wits

Higher 3

Nth Term Rule

What is the n th term rule of:

1) 4, 3, 1, 0, ...

2) 2, 8, 18, 32, ...

Algebraic Proof

Prove that the sum of two consecutive odd numbers is always even.

Solving Quadratics

1) $(x + 4)(2x - 5) = 0$

2) $x^2 - 7x + 10 = 0$

Equation of a Line

1) What is the gradient of the line $y = 2x + 5$.

2) Circle the pair of lines which are parallel to each other.

$y = 3x$ $y = x$ $y - 3x = 5$

$y + x = 0$ $y = \frac{1}{3}x + 2$

3) Circle the pair of lines which are perpendicular to each other.

$y = 3x$ $y = x$ $y - 3x = 5$

$y + x = 4$ $y = \frac{1}{3}x + 2$



Rationalise the Denominator

Show that $\frac{2}{3+\sqrt{5}} = \frac{3-\sqrt{5}}{2}$

$$\frac{2}{3+\sqrt{5}} \times \frac{3-\sqrt{5}}{3-\sqrt{5}} = \frac{6-2\sqrt{5}}{9-5}$$
$$= \frac{6-2\sqrt{5}}{4} = \frac{3-\sqrt{5}}{2}$$

Changing the Subject

Make x the subject.

1) $c(a+x) = b$

$$ca + cx = b$$
$$cx = b - ca$$
$$x = \frac{b - ca}{c}$$

2) $u(x+v) = w + vx$

$$ux + uv = w + vx$$
$$ux - vx = w - uv$$
$$x(u - v) = w - uv$$
$$x = \frac{w - uv}{u - v}$$



Quick Wits

Higher 3

Nth Term Rule

What is the nth term rule of:

- 1) 4, 3, 1, 0, ...
 $5 - n$
- 2) 2, 8, 18, 32, ...
 $2n^2$

Algebraic Proof

Prove that the sum of two consecutive odd numbers is always even.

Even: $2n$

Odd $2n - 1$ and $2n + 1$

$$2n - 1 + 2n + 1 = 4n = 2(2n)$$

a multiple of 2 and \therefore even.

Solving Quadratics

- 1) $(x+4)(2x-5) = 0$
 $x = -4$ and $x = \frac{5}{2} = 2\frac{1}{2}$
- 2) $x^2 - 7x + 10 = 0$
 $(x-2)(x-5) = 0$
 $x = 2$ and $x = 5$

Equation of a Line

- 1) What is the gradient of the line $y = 2x + 5$.
Gradient is 2
- 2) Circle the pair of lines which are parallel to each other.

$y = 3x$

$y = x$

$y - 3x = 5$

$y + x = 0$

$y = \frac{1}{3}x + 2$

- 3) Circle the pair of lines which are perpendicular to each other.

$y = 3x$

$y = x$

$y - 3x = 5$

$y + x = 4$

$y = \frac{1}{3}x + 2$