Rearranging formulae: powers and roots

1

Make x the subject of $y = x^2 + 9$

$y = x^2 + 9$ $\quad -9$

$y - 9 = x^2$ $\quad \pm\sqrt{}$

$____ = ____$

$x = ____$

2

Make x the subject of $a = 6x^2$

$a = 6x^2$ $\quad \div 6$

$\frac{a}{6} = x^2$ $\quad ____$

$____ = ____$

$x = ____$

3

Make x the subject of $p = \frac{x^2}{5}$

$p = \frac{x^2}{5}$ $\quad \times 5$

$____ = ____$ $\quad ____$

$____ = ____$

$x = ____$

4

Make x the subject of $y = 3x^2 - 2$

$y = 3x^2 - 2$ $\quad +2$

$____ = ____$ $\quad ____$

$____ = ____$ $\quad ____$

$____ = ____$

$x = ____$

5

Make x the subject of $k = \frac{x^2}{2} + 5$

$k = \frac{x^2}{2} + 5$ $\quad ____$

$____ = ____$ $\quad ____$

$____ = ____$ $\quad ____$

$____ = ____$

$x = ____$

6

Make x the subject of $y = \sqrt{x} + 8$

$y = \sqrt{x} + 8$ $\quad -8$

$____ = ____$ $\quad ____$

$____ = ____$

$x = ____$

7

Make x the subject of $w = \sqrt{x - 2}$

$w = \sqrt{x - 2}$ $\quad ____$

$____ = ____$ $\quad ____$

$____ = ____$

$x = ____$

8

Ben makes x the subject of $y = \sqrt{x} + 3$.

He writes $x = y^2 - 3$.

Explain his mistake.

Rearranging formulae: powers and roots *further practice*

9

Make x the subject of $y = 5x^2 - 6$

Answer ____

10

A cube has edges s cm long.

Its surface area is $A = 6s^2$ cm^2.

Make s the subject. Then find s when $A = 150$.

Answer ____

11

Make x the subject of $y = \frac{\sqrt{x}}{3}$

Answer ____

12

Make x the subject of $m = x^2 + c$

Answer ____

13

A wave in water d metres deep moves at about v m/s, where $v = 3\sqrt{d}$.

Make d the subject. Then find how deep the water is when the wave moves at 6 m/s.

Answer ____

14

A square tile with sides x cm long costs C pence, where $C = 3x^2 + 20$.

Make x the subject. Then find the length of the sides of a tile that costs 320 pence.

Answer ____

15

Mia makes x the subject of $t = 2\sqrt{x}$.

She writes $x = 2t^2$. Explain her mistake.

Answer ____

16

Make x the subject of $y = (x + 2)^2$.

Then explain why $x = 1$ and $x = -5$ both give $y = 9$.

Answer ____