

GCSE Maths: Changing the subject: brackets, fractions, powers and roots (Foundation): worksheet

GCSE Maths - Substitution and Formulae - Foundation - Lesson 8.7

Name: _____

Date: _____

Score: _____

11 questions. Write your answers in the spaces. Answers and step-by-step help are free at websink.site/gcse/maths/ch08-substitution-formulae/foundation/changing-the-subject-brackets-fractions-powers-and-roots/

Exercise 8H Brackets, fractions, powers and roots Non-calculator

1 Make x the subject of each formula.

(a) Make x the subject of $y = 3(x + 2)$

Answer: _____

(b) Make x the subject of $y = 5(x - 1)$

Answer: _____

(c) Make x the subject of $y = 4(x + 3) - 1$

Answer: _____

(d) Make x the subject of $y = 2(3x - 1)$

Answer: _____

2 Make the letter shown the subject of each formula.

(a) Make l the subject of $P = 2(l + w)$

Answer: _____

(b) Make b the subject of $A = \frac{1}{2}(a + b)h$

Answer: _____

(c) Make C the subject of $F = \frac{9}{5}C + 32$

Answer: _____

(d) Make a the subject of $S = 2(ab + bc)$

Answer: _____

3 Make x the subject of each formula.

(a) Make x the subject of $y = \frac{x}{5}$

Answer: _____

(b) Make x the subject of $y = \frac{x + 3}{2}$

Answer: _____

(c) Make x the subject of $y = \frac{2x - 1}{3}$

Answer: _____

(d) Make x the subject of $M = \frac{x+y}{2}$

Answer:

4 Make r (or the letter shown) the subject of each formula.

(a) Make s the subject of $A = s^2$

Answer:

(b) Make r the subject of $A = \pi r^2$

Answer:

(c) Make x the subject of $y = x^2 + 3$

Answer:

(d) Make v the subject of $E = \frac{1}{2}mv^2$

Answer:

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

Answer:

5 Make x (or the letter shown) the subject of each formula.

(a) Make x the subject of $y = \sqrt{x}$

Answer:

(b) Make x the subject of $y = \sqrt{x} + 3$

Answer:

(c) Make h the subject of $v = \sqrt{2gh}$

Answer:

(d) Make x the subject of $y = \sqrt{5x}$

Answer:

6 Ben says that $A = \pi r^2$ can be rearranged to $r = \sqrt{A/\pi}$. Use $r = 2$ to show that he is wrong, and write the correct formula.

Answer:

7 The area of a circular pond is $A = \pi r^2$.

(a) Make r the subject.

Answer:

(b) The pond has area 28.26 m^2 . Use $\pi = 3.14$ to work out its radius.

Answer:

8 An object dropped from rest falls a distance d metres in t seconds, where $d = \frac{1}{2}gt^2$ and $g = 10$.

(a) Make t the subject.

Answer:

(b) How long does it take to fall 80 m?

Answer:

9 The kinetic energy of an object is $E = \frac{1}{2}mv^2$.

(a) Make v the subject.

Answer:

(b) Work out v when $E = 100$ joules and $m = 2$ kg.

Answer:

10 Make h the subject of $A = \frac{h(a+b)}{2}$ and work out h when $A = 48$, $a = 5$ and $b = 7$.

(a) Make h the subject

Answer:

(b) Work out h

Answer:

11 (a) Make x the subject of $y = 2x^2$. (b) Work out x when $y = 50$. (c) There is a second value of x that also gives $y = 50$. What is it?

(a) Make x the subject

Answer:

(b) x when $y = 50$

Answer:

(c) The second value of x

Answer: