

GCSE Maths: Substituting negative numbers (Higher): worksheet

GCSE Maths - Substitution and Formulae - Higher - Lesson 8.3

Name: _____

Date: _____

Score: _____

15 questions. Write your answers in the spaces. Answers and step-by-step help are free at websink.site/gcse/maths/ch08-substitution-formulae/higher/substituting-negative-numbers/

Exercise 8C Substituting negative numbers Non-calculator

1 Work out each of these. They revise the rules for negative numbers.

(a) $5 + (-3)$

Answer: _____

(b) $-4 - (-6)$

Answer: _____

(c) $3 \times (-4)$

Answer: _____

(d) $-2 \times (-7)$

Answer: _____

(e) $12 \div (-3)$

Answer: _____

(f) $-20 \div (-4)$

Answer: _____

2 Work out the value of each expression when $x = -2$.

(a) $x + 5$

Answer: _____

(b) $3x$

Answer: _____

(c) $4 - x$

Answer: _____

(d) $x - 1$

Answer: _____

(e) $2x + 7$

Answer: _____

(f) $10 + 3x$

Answer: _____

3 Work out the value of each expression when $a = -3$ and $b = 4$.

(a) $a + b$

Answer: _____

(b) ab

Answer:

(c) $a - b$

Answer:

(d) $2a + 3b$

Answer:

(e) $b - a$

Answer:

4 Work out the value of each expression when $x = -5$.

(a) x^2

Answer:

(b) $-x^2$

Answer:

(c) $(-x)^2$

Answer:

(d) $x^2 + 3$

Answer:

(e) $3x^2$

Answer:

5 The formula to change a temperature from degrees Celsius to degrees Fahrenheit is $F = \frac{9C}{5} + 32$. Work out F when

(a) $C = -10$

Answer:

(b) $C = -5$

Answer:

(c) $C = -40$

Answer:

6 Work out the value of each expression when $a = -2$ and $b = -3$.

(a) ab

Answer:

(b) a^2b

Answer:

(c) $a^2 + b^2$

Answer:

(d) $a - b$

Answer:

(e) ab^2

Answer:

(f) $(a + b)^2$

Answer:

- 7 Lena says, "When $x = -3$, $x^2 = -9$." Is she correct? Explain.

Answer:

- 8 Jo has £40 in her bank account and spends £25 each month with no money coming in. After t months her balance is $B = 40 - 25t$ pounds.

(a) Work out B when $t = 1$.

Answer:

(b) Work out B when $t = 2$.

Answer:

(c) Work out B when $t = 3$.

Answer:

(d) What does your answer to part (c) mean for Jo?

Answer:

- 9 Work out the value of each expression when $x = -4$ and $y = 6$.

(a) $\frac{x + y}{2}$

Answer:

(b) $\frac{y}{x}$

Answer:

(c) $\frac{3x}{y}$

Answer:

(d) $\frac{x^2}{y + 2}$

Answer:

- 10 When $x = -2$, put these expressions in order, starting with the smallest value: x^2 , $2x$, x^3 , $-x$.

Answer:

- 11 Work out the value of each expression when $x = -1$.

(a) $(x - 3)^2$

Answer:

(b) $3(2 - x)$

Answer:

(c) $(x + 4)(x - 2)$

Answer:

(d) $5 - (x + 2)$

Answer:

- 12 Show that $x^2 + 2x + 1 = 0$ when $x = -1$.

Answer:

- 13 Work out the value of $2x^2 - 3xy + y^2$ when

(a) $x = -2$ and $y = 3$

Answer:

(b) $x = 3$ and $y = -2$

Answer:

- 14 (a) Work out $x^2 - y^2$ when $x = -3$ and $y = -5$. (b) Work out $(x - y)(x + y)$ for the same values. (c) What do you notice? Why?

(a) $x^2 - y^2$

Answer:

(b) $(x - y)(x + y)$

Answer:

(c) What do you notice? Why?

Answer:

- 15 Two different numbers x satisfy $x^2 = 16$. Find both numbers and show that each one works.

Answer: