

Simplifying Algebraic Fractions

ANSWERS

1

Simplify fully $\frac{x^2 + 5x + 6}{x + 2}$

$$= \frac{(x+2)(x+3)}{(x+2)}$$

Answer $x + 3$

2

Simplify fully $\frac{x^2 + 7x + 12}{x + 3}$

$$= \frac{(x+3)(x+4)}{(x+3)}$$

Answer $x + 4$

3

Simplify fully $\frac{x^2 + 6x + 5}{x + 1}$

$$= \frac{(x+1)(x+5)}{(x+1)}$$

Answer $x + 5$

4

Simplify fully $\frac{x^2 + x - 6}{x - 2}$

$$= \frac{(x-2)(x+3)}{(x-2)}$$

Answer $x + 3$

5

Simplify fully $\frac{x^2 + 5x + 4}{x^2 + 6x + 8}$

$$= \frac{(x+1)(x+4)}{(x+2)(x+4)}$$

Answer $\frac{x+1}{x+2}$

6

Simplify fully $\frac{x^2 - 9}{x^2 + 5x + 6}$

$$= \frac{(x-3)(x+3)}{(x+2)(x+3)}$$

Answer $\frac{x-3}{x+2}$

7

Simplify fully $\frac{2x^2 + 6x}{2x}$

$$\frac{2x(x+3)}{2x}$$

Answer $x + 3$

8

A rectangle has an area of $x^2 + 5x + 6$ and a width of $x + 2$. Find its length.

$$(x+2)(x+3)$$

Answer $x + 3$

Simplifying Algebraic Fractions *further practice*

ANSWERS

9

Simplify fully $\frac{2x^2 + 5x - 3}{x^2 + 3x}$

$$\frac{(2x-1)(x+3)}{x(x+3)}$$

Answer $\frac{2x-1}{x}$

10

Simplify fully $\frac{x^2 - 4x}{16 - x^2}$

$$\frac{x(x-4)}{(4-x)(4+x)}$$

Answer $-\frac{x}{x+4}$

11

A rectangle is $\frac{x^2 - 1}{x + 3}$ cm long and $\frac{2x + 6}{x - 1}$ cm wide. Find its area in its simplest form.

$$\frac{(x+1)(x-1) \times 2(x+3)}{(x+3)(x-1)}$$

Answer $(2x+2) \text{ cm}^2$

12

$\frac{x^2 + kx - 12}{x + 6}$ simplifies to $x - 2$. Find k .

$$(x+6)(x-2) = x^2 + 4x - 12$$

Answer $k = 4$

13

A cuboid has a volume of $(x^3 + 7x^2 + 12x) \text{ cm}^3$. Its base is $x \text{ cm}$ by $(x+3) \text{ cm}$. Find its height.

$$\frac{x^3 + 7x^2 + 12x}{x(x+3)(x+4)}$$

Answer $(x+4) \text{ cm}$

14

A bag holds $(x^2 + 3x - 4)$ counters and $(x+4)$ of them are red. A counter is taken at random. Find the probability that it is red, in its simplest form.

$$\frac{x+4}{(x+4)(x-1)}$$

Answer $\frac{1}{x-1}$

15

Solve $\frac{x^2 - 2x - 15}{x^2 - 9} = 2$

$$\frac{(x-5)(x+3)}{(x-3)(x+3)} = \frac{x-5}{x-3}$$

Answer $x = 1$

16

Ella says $\frac{x+8}{x+2}$ simplifies to 4. Show that she is wrong and explain her mistake.

$$x = 1: \frac{9}{3} = 3$$

Answer $x = 1$ gives 3, not 4