Simplifying algebraic fractions

ANSWERS

1

Simplify fully $\frac{3x+12}{x+4}$

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

Answer: 3

2

Simplify fully $\frac{6x+12}{5x+10}$

$= \frac{6(x+2)}{5(x+2)}$

Answer: $\frac{6}{5}$

3

Simplify fully $\frac{x^2+7x}{4x+28}$

$= \frac{x(x+7)}{4(x+7)}$

Answer: $\frac{x}{4}$

4

Simplify fully $\frac{8x+12}{2x+3}$

$= \frac{4(2x+3)}{(2x+3)}$

Answer: 4

5

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

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

Answer: $x+2$

6

Simplify fully $\frac{x^2+10x+21}{x+3}$

$= \frac{(x+3)(x+7)}{(x+3)}$

Answer: $x+7$

7

Simplify fully $\frac{x^2-2x-15}{x-5}$

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

Answer: $x+3$

8

Sam simplifies $\frac{x^2+4x+3}{x+3}$ to x^2+4x+1. Explain his mistake. Simplify it fully.

he cancelled the 3s: terms, not factors

$= \frac{(x+1)(x+3)}{(x+3)}$

Answer: $x+1$

Simplifying algebraic fractions *further practice*

ANSWERS

9

Simplify fully $\frac{7x+14}{x+2}$

$= \frac{7(x+2)}{(x+2)}$

Answer: 7

10

Simplify fully $\frac{x^2+9x+20}{x+5}$

$= \frac{(x+5)(x+4)}{(x+5)}$

Answer: $x+4$

11

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

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

Answer: $x-4$

12

Simplify fully $\frac{x+3}{x^2+5x+6}$

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

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

13

A rectangle has an area of $(x^2+8x+15)$ cm² and a width of $(x+3)$ cm. Find its length.

length $= \frac{x^2+8x+15}{x+3}$

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

Answer: $(x+5)$ cm

14

Simplify fully $\frac{x^2+6x}{x^2+4x-12}$

$= \frac{x(x+6)}{(x+6)(x-2)}$

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

15

$\frac{x^2+kx+12}{x+3}$ simplifies to $x+4$.

Find the value of k.

$(x+3)(x+4) = x^2+7x+12$

Answer: $k=7$

16

Ali says $\frac{x+8}{x+4}$ simplifies to 2.

Substitute $x=1$ to show that he is wrong. Explain his mistake.

$\frac{1+8}{1+4} = \frac{9}{5}$, not 2

8 and 4 are terms, not factors

Answer: it does not simplify