

# Change subject where subject appears twice in an algebraic fraction

Maths

Miss Davies



## Change subject where subject appears twice (algebraic fraction)

1. Make  $x$  the subject of these formulae.

a)  $y = \frac{x+5}{x}$

b)  $y = \frac{x}{x+5}$

c)  $z + 2 = \frac{x+4f}{x}$

d)  $3z = \frac{x}{x-y}$

e)  $y - z = \frac{a-x}{bx}$

f)  $y + z = \frac{x+b}{-x}$

2. Jesse has made  $x$  the subject of this formula,  $T = ax + 4x - 5$

Here is his answer,  $x = \frac{T-ax+5}{4}$

a) Why can this not be the answer?

b) What mistake has he made?

c) What is the correct answer?



# Answers



# Change subject where subject appears twice (algebraic fraction)

1. Make  $x$  the subject of these formulae.

$$\text{a) } y = \frac{x+5}{x} \qquad x = \frac{5}{y-1}$$

$$\text{b) } y = \frac{x}{x+5} \qquad x = \frac{-5y}{y-1}$$

$$\text{c) } z + 2 = \frac{x+4f}{x} \qquad x = \frac{4f}{z+1}$$

$$\text{d) } 3z = \frac{x}{x-y} \qquad x = \frac{3zy}{3z-1}$$

$$\text{e) } y - z = \frac{a-x}{bx} \qquad x = \frac{a}{by - bz + 1}$$

$$\text{f) } y + z = \frac{x+b}{-x} \qquad x = \frac{b}{-y-z-1}$$

2. Jesse has made  $x$  the subject of this formula,  $T = ax + 4x - 5$

Here is his answer,  $x = \frac{T-ax+5}{4}$

a) Why can this not be the answer?

$x$  is on both sides of the equation

b) What mistake has he made?

not collected the  $x$  terms together and factorised

c) What is the correct answer?

$$x = \frac{T+5}{a+4}$$

