M8 - 10.2 - "$ax = b$" "$\dfrac{x}{a} = b$" "$\dfrac{ax}{b} = c$" Notes

Solve for x, by dividing to both sides.

$2x = 4$

$\dfrac{2x}{2} = \dfrac{4}{2}$ Divide both sides by 2

$\dfrac{2x}{2} = \dfrac{4}{2}$ Cross it off

$x = \dfrac{4}{2}$

$x = 2$

Divide both sides by the coefficient on x.

$\dfrac{2}{2} = 1$

Check Answer

$2x = 4$ Question
$2(2) = 4$ Substitute
$4 = 4$ ✔   Left Must Equal Right

Short Forms

$\dfrac{2x}{2} = \dfrac{4}{2}$
$x = 2$

$2x = \dfrac{4}{2}$
$x = 2$

Solve for x, by multiplying to both sides.

$\dfrac{x}{3} = 6$

$3 \times \dfrac{x}{3} = 6 \times 3$ Multiply both sides by 3

$3 \times \dfrac{x}{3} = 6 \times 3$ Cross it off

$x = 6 \times 3$

$x = 18$

Multiply both sides by number below the letter

$\dfrac{3}{3} = 1$

Check Answer

$\dfrac{x}{3} = 6$
$\dfrac{18}{3} = 6$
$6 = 6$ ✔

Short Forms

$3 \times \dfrac{x}{3} = 6 \times 3$
$x = 18$

$\dfrac{x}{3} = 6 \times 3$
$x = 18$

Solve for x

$\dfrac{5}{4}x = 10$

$4 \times \dfrac{5}{4}x = 10 \times 4$ Multiply both sides by 4

$4 \times \dfrac{5}{4}x = 10 \times 4$

$5x = 40$

$\dfrac{5x}{5} = \dfrac{40}{5}$ Divide both sides by 5

$\dfrac{5x}{5} = \dfrac{40}{5}$

$x = \dfrac{40}{5}$

$x = 8$

Short Form

$4 \times \dfrac{5}{4}x = 10 \times 4$
$5x = 40$
$\dfrac{5x}{5} = \dfrac{40}{5}$
$x = 8$

$\dfrac{5}{4}x = 10 \times \dfrac{4}{5}$
$x = 8$

Check Answer

$\dfrac{5}{4}x = 10$
$\dfrac{5}{4}(8) = 10$
$10 = 10$ ✔