

Solving Equations with x as the Denominator

ANSWERS 

1
Solve.

$$\frac{12}{x} = 3$$

$\times x$ both sides $12 = 3x$

$\div 3$ both sides $x = 4$

Check $12 \div 4 = 3$

$x = 4$

2
Solve.

$$\frac{30}{x} = 5$$

$\times x$ both sides $30 = 5x$

$\div 5$ both sides $x = 6$

Check $30 \div 6 = 5$

$x = 6$

3
Solve.

$$\frac{28}{x} = 4$$

$\times x$ both sides $28 = 4x$

$\div 4$ both sides $x = 7$

Check $28 \div 7 = 4$

$x = 7$

4
Solve.

$$\frac{18}{x} = 4$$

$\times x$ both sides $18 = 4x$

$\div 4$ both sides $x = 4.5$

Check $18 \div 4.5 = 4$

$x = 4.5$

5
Solve both. One has x on top and one has x as the denominator.

a) $\frac{x}{6} = 3$ b) $\frac{18}{x} = 3$

$\times 6$ both sides $x = 3 \times 6$ $\times x$ both sides $18 = 3x$

$x = 18$ $x = 6$

6
Solve.

$$\frac{6}{x} = 0.8$$

$6 = 0.8x$

$x = 6 \div 0.8$

Check: $6 \div 7.5 = 0.8$

$x = 7.5$

7
Solve. Give x to 1 decimal place.

$$\frac{5}{x} = 0.6$$

$5 = 0.6x$

$x = 5 \div 0.6 = 8.333...$

Check: $5 \div 8.3 = 0.60...$

$x = 8.3$

8
Sam solves $\frac{9}{x} = 0.6$ and writes $x = 9 \times 0.6 = 5.4$. Put Sam's answer back in to show it is wrong. Then find the right answer.

$9 \div 5.4 = 1.67$, not 0.6

$x = 9 \div 0.6$

$x = 15$

Solving Equations with x as the Denominator further practice

ANSWERS 

9

Solve. Give x to 1 decimal place.

$$\frac{8}{x} = 0.7$$

$8 = 0.7x$

$x = 8 \div 0.7$

$x = 11.4$

10

Write the last step that gives x on its own, then find x .

	Last step	x
$\frac{x}{5} = 2$	$\times 5$	10
$\frac{10}{x} = 2$	$\div 2$	5
$\frac{x}{0.5} = 3$	$\times 0.5$	1.5
$\frac{3}{x} = 0.5$	$\div 0.5$	6

11

Solve.

$$2.5 = \frac{15}{y}$$

$2.5y = 15$

$y = 15 \div 2.5$

$y = 6$

12

Without working them out, say which x is bigger than 9 and which is smaller. Then solve both.

a) $\frac{9}{x} = 0.75$ b) $\frac{9}{x} = 1.5$

a) is bigger: 0.75 is less than 1

a) $9 \div 0.75$ b) $9 \div 1.5$

Answer a) $x = 12$ b) $x = 6$

13

A 3 m ribbon is cut into n equal pieces. Each piece is 0.25 m long, so $\frac{3}{n} = 0.25$. How many pieces are there?

$3 = 0.25n$

$n = 3 \div 0.25$

$n = 12$ pieces

14

Solve. Give x to 1 decimal place.

$$\frac{7}{x} = 0.574$$

$7 = 0.574x$

$x = 7 \div 0.574 = 12.19...$

$x = 12.2$

15

Mia shares £18 equally between p friends. Each friend gets £2.25. Write an equation with p as the denominator. Then find p .

$\frac{18}{p} = 2.25$

$p = 18 \div 2.25$

$p = 8$ friends

16

$12 \div 4 = 3$, so $12 \div 3 = 4$. Use this to explain why $\frac{5}{x} = 0.6$ gives $x = 5 \div 0.6$.

$5 \div x = 0.6$, so $5 \div 0.6 = x$

The number you divide by and the answer can swap places