

Skill 22.4 Substituting into expressions involving fractions.

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Q. If $d = 8$,
find the value of:
 $\frac{1}{2}$ of d

$$\begin{aligned} \text{A. } \frac{1}{2} \text{ of } d &= \frac{1}{2} \times 8 \\ &= \frac{8}{2} \\ &= 4 \end{aligned}$$

Substitute d with 8.
Replace "of" with " \times ".
Multiply 1 by 8.
To simplify the fraction divide the numerator by the denominator:
 $8 \div 2 = 4$

Q. If $a = 6$,
find the value of:
 $\frac{18}{a}$

$$\begin{aligned} \text{A. } \frac{18}{a} &= \frac{18 \div 6}{6 \div 6} \\ &= \frac{3}{1} \\ &= 3 \end{aligned}$$

Substitute a with 6.
To simplify the fraction divide the numerator and the denominator by their HCF, which is 6.

a) If $b = 6$,
find the value of:

$$\begin{aligned} \frac{1}{3} \text{ of } b &= \frac{1}{3} \times 6 \\ &= \frac{6}{3} \\ &= 2 \end{aligned}$$

b) If $c = 12$,
find the value of:

$$\begin{aligned} \frac{1}{4} \text{ of } c &= \frac{1}{4} \times 12 \\ &= \frac{12}{4} \\ &= 3 \end{aligned}$$

c) If $p = 10$,
find the value of:

$$\begin{aligned} \frac{1}{2} \text{ of } p &= \frac{1}{2} \times 10 \\ &= \frac{10}{2} \\ &= 5 \end{aligned}$$

d) If $r = 24$,
find the value of:
 $\frac{1}{6}$ of r

$$\begin{aligned} &= \frac{1}{6} \times 24 \\ &= \frac{24}{6} \\ &= 4 \end{aligned}$$

e) If $h = 15$,
find the value of:
 $\frac{2}{3}$ of h

$$\begin{aligned} &= \frac{2}{3} \times 15 \\ &= \frac{30}{3} \\ &= 10 \end{aligned}$$

f) If $m = 12$,
find the value of:
 $\frac{3}{4}$ of m

$$\begin{aligned} &= \frac{3}{4} \times 12 \\ &= \frac{36}{4} \\ &= 9 \end{aligned}$$

g) If $g = 15$,
find the value of:

$$\begin{aligned} \frac{8}{5} &= \frac{8}{5} \times 15 \\ &= \frac{120}{5} \\ &= 24 \end{aligned}$$

h) If $x = 9$,
find the value of:

$$\begin{aligned} \frac{x}{3} &= \frac{9}{3} \\ &= 3 \end{aligned}$$

i) If $k = 8$,
find the value of:

$$\begin{aligned} \frac{24}{k} &= \frac{24}{8} \\ &= 3 \end{aligned}$$