8:09 | Solving Literal Equations

Name: _____ Class: _____

Examples

To solve a literal equation, we rearrange the equation by using inverse operations.

1 Solve for x.

a $10x = y$

$(\div 10) \quad (\div 10)$

$\therefore x = \dfrac{y}{10}$

b $w = x + y$

$(-y) \quad (-y)$

$w - y = x$

$\therefore x = w - y$

2 Change the subject to x.

a $y = 3x + 7$

$(-7) \quad (-7)$

$y - 7 = 3x$

$(\div 3) \quad (\div 3)$

$\dfrac{y-7}{3} = x$

$\therefore x = \dfrac{y-7}{3}$

b $4x - 3b = c$

$(+3b) \quad (+3b)$

$4x = c + 3b$

$(\div 4) \quad (\div 4)$

$\therefore x = \dfrac{c+3b}{4}$

Exercise

1 Make x the subject.

a $x - a = y$

b $2x = a$

c $x + mn = p$

d $\dfrac{x}{p} = q$

e $x + f = g$

f $p = x + q$

g $x + 8 = y$

h $xy = 12$

i $x(a + b) = c$

j $\dfrac{m}{x} = n$

k $gh + x = f$

l $7x = p + q$

2 Solve for x.

a $2x + m = n$

b $\dfrac{x+a}{3} = y$

c $fx - g = h$

d $\dfrac{ax}{b} = c$

e $t = ux + w$

f $y = 2x - 5$

g $\dfrac{l-x}{m} = n$

h $\dfrac{x}{a} - b = c$

i $\dfrac{x+h}{2} = y$

j $\dfrac{3x}{5} = y$

k $4x + 5 = y$

l $7 - 3x = y$

m $\dfrac{x+5}{7} = y$

n $\dfrac{x}{r} + s = t$

o $a - bx = c$

p $\dfrac{x+z}{y} = -6$

Fun Spot 8:09 | What do you call a fake noodle?

Solve each equation, and match the letters and answers below.

A $a + 8 = 2$

I $7i = 63$

M $m - 3 = -8$

N $\dfrac{n}{7} = 4$

P $10p = 10$

S $s + 17 = 20$

T $-6t = 18$

−6	28		9	−5	1	−6	3	−3	−6

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1 a $x = a + y$ **b** $x = \dfrac{a}{2}$ **c** $x = p - mn$ **d** $x = pq$ **e** $x = g - f$ **f** $x = p - q$

   g $x = y - 8$ **h** $x = \dfrac{12}{y}$ **i** $x = \dfrac{c}{a+b}$ **j** $x = \dfrac{m}{n}$ **k** $x = f - gh$ **l** $x = \dfrac{p+q}{7}$

2 a $x = \dfrac{n-m}{2}$ **b** $x = 3y - a$ **c** $x = \dfrac{h+g}{f}$ **d** $x = \dfrac{bc}{a}$ **e** $x = \dfrac{t-w}{u}$ **f** $x = \dfrac{y+5}{2}$

   g $x = l - mn$ **h** $x = a(c+b)$ **i** $x = 2y - h$ **j** $x = \dfrac{5y}{3}$ **k** $x = \dfrac{y-5}{4}$ **l** $x = \dfrac{7-y}{3}$

   m $x = 7y - 5$ **n** $x = r(t-s)$ **o** $x = \dfrac{a-c}{b}$ **p** $x = -6y - z$