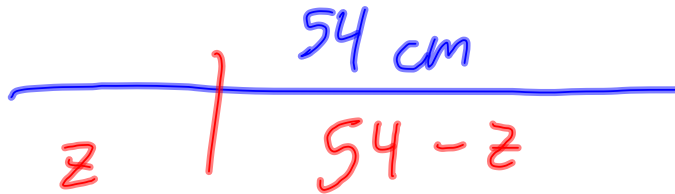


- 1 A 54-centimeter piece of rope is cut into two pieces. If one piece is z centimeters long, express the other length as an algebraic expression in z .

- A) $(54 - 2z)$ cm
 B) $(z - 54)$ cm
 C) $(54 - z)$ cm
 D) $(z + 54)$ cm



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Consecutive
Integers

7, 8, 9

-3, -2, -1

$n, n+1, n+2$

Consec. Even
Integers

2, 4, 6

10, 12, 14

-6, -4, -2

-2, 0, 2

$n, n+2, n+4$

Consec. Odd
Integers

5, 7, 9

$n, n+2, n+4$

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- 2 There are three consecutive integers. Let x denote the first (smallest) of them. Write, and simplify, an expression for the sum of 28 and the third integer.

- A) $x + 28$
 B) $x + 29$
 C) $2x + 30$
 D) $x + 30$

First, write the three integers.

$x, x+1, x+2$

$$\begin{aligned} & (x+2) + 28 \\ & = x + 2 + 28 \\ & = x + 30 \end{aligned}$$

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- 3 There are three consecutive **even** integers. Let x denote the first (smallest) of them. Write, and simplify, an expression for the sum of the first and the third integer.

- A) $3x + 6$
 B) $2x + 2$
 C) $2x + 4$
 D) $3x + 4$

$x, x+2, x+4$

$x + (x+4)$

$x + x + 4$

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- 4 There are **four** consecutive **odd** integers. Let x denote the first (smallest) of them. Write, and simplify, an expression for the sum of all four integers.

- A) $4x + 6$
B) $4x + 12$
C) $x + 12$
D) $4x + 4$

$$x, x+2, x+4, x+6$$

$$\begin{aligned} & x + (x+2) + (x+4) + (x+6) \\ = & x + x+2 + x+4 + x+6 \end{aligned}$$

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You will be practicing solving equations. Some of the solutions will be fractions. Enter your answer as an integer (if it is), or a proper fraction, or an improper fraction, NOT as a decimal or a mixed number.

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5 Solve the equation.

$$9x - (2x - 1) = 2$$

$$9x - 2x + 1 = 2$$

$$7x + 1 = 2$$

$$7x + 1 + (-1) = 2 + (-1)$$

$$\frac{1}{7}(7x) = (1)\frac{1}{7}$$

$$x = \frac{1}{7}$$

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6 Solve the equation.

$$6(3x - 1) = 24$$

$$18x - 6 = 24$$

$$18x - 6 + 6 = 24 + 6$$

$$\frac{1}{18}(18x) = (30)\frac{1}{18}$$

$$x = \frac{30}{18} \rightarrow \frac{\cancel{2} \cdot \cancel{3} \cdot 5}{\cancel{2} \cdot \cancel{3} \cdot 3}$$

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7 Solve the equation.

$$(y - 4) - (y + 7) = 8y$$

$$y - 4 - y - 7 = 8y$$

$$\frac{1}{8}(-11) = (8y)\frac{1}{8}$$

$$-\frac{11}{8} = y$$

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8 Solve the equation.

$$8n = 7(5n + 2)$$

$$8n = 35n + 14$$

$$8n - 35n = 35n + 14 - 35n$$

$$-\frac{1}{27}(-27n) = \left(\frac{14}{1}\right)\left(-\frac{1}{27}\right)$$

$$n = -\frac{14}{27}$$

$$0 = 27n + 14$$

$$-14 = 27n$$

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9 Solve the equation.

$$7y = 6(3y - 8)$$



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10 Solve the equation.

$$12(4x - 8) = 7x - 9$$

Simplify:

$$48x - 96 = 7x - 9$$

Gather x-terms:

$$48x - 96 - 7x = 7x - 9 - 7x$$

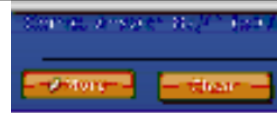
$$41x - 96 = -9$$

Get rid of the constants around x.

$$41x - 96 + 96 = -9 + 96$$

$$\frac{1}{41}(41x) = (87)\frac{1}{41}$$

$$x = \frac{87}{41}$$



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11 Solve the equation.

$$2(y + 7) = 3(y - 5)$$

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12 Solve the equation.

$$2(2z - 4) = 3(z + 2)$$

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13 Solve the equation.

$$3(2z - 4) = 5(z - 3)$$

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14 Solve the equation.

$$6x + 7(3x - 2) = 16 - 3x$$

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