Name: KEY

LESSON 1

DEVELOPING

One-Step Equations: Integers

Add/Sub Level 1: S3

Solve each equation.

1) $3 + u = 9$

$-3 \quad -3$

$u = 6$

2) $12 = a + 7$

$-7 \quad -7$

$5 = a$

3) $13 = c - 6$

$+6 \quad +6$

$19 = c$

4) $p - 4 = 0$

$+4 \quad +4$

$p = 4$

5) $16 = s + 1$

$-1 \quad -1$

$15 = s$

6) $v + 5 = 12$

$-5 \quad -5$

$v = 7$

7) $w - 8 = 4$

$+8 \quad +8$

$w = 12$

8) $2 + t = 3$

$-2 \quad -2$

$t = 1$

9) $7 = 4 + g$

$-4 \quad -4$

$3 = g$

10) $b - 10 = 1$

$+10 \quad +10$

$b = 11$

Name : _____

One-Step Equations: Integers

Mul/Div Level 1: S3

Solve each equation.

1) $\frac{9y}{9} = \frac{81}{9}$

$y = 9$

2) $\frac{8u}{8} = \frac{48}{8}$

$u = 6$

3) $\frac{c}{16} = 1$

$\times 16 \quad \times 16$

$c = 16$

4) $3 = \frac{m}{10}$

$\times 10 \quad \times 10$

$30 = m$

5) $\frac{77}{11} = \frac{11v}{11}$

$7 = v$

6) $\frac{96}{12} = \frac{12b}{12}$

$8 = b$

7) $\frac{6w}{6} = \frac{60}{6}$

$w = 10$

8) $\frac{k}{5} = 13$

$\times 5 \quad \times 5$

$k = 65$

9) $8 = \frac{x}{3}$

$\times 3 \quad \times 3$

$24 = x$

10) $\frac{12}{3} = \frac{3n}{3}$

$4 = n$

Name : _____

One-Step Equations: Integers

Mixed Operations Level 1: S1

Solve each equation.

1) $10 = z + 6$

$-6 \quad -6$

$4 = z$

2) $\frac{8y}{8} = \frac{48}{8}$

$y = 6$

3) $q - 12 = 1$

$+12 \quad +12$

$q = 13$

4) $18 = \frac{a}{2}$

$\times 2 \quad \times 2$

$36 = a$

5) $\frac{r}{3} = 7$

$\times 3 \quad \times 3$

$r = 21$

6) $11 = m - 4$

$+4 \quad +4$

$15 = m$

7) $t - 19 = 2$

$+19 \quad +19$

$t = 21$

8) $1 + s = 3$

$-1 \quad -1$

$s = 2$

9) $\frac{24}{4} = \frac{4c}{4}$

$6 = c$

10) $\frac{v}{5} = 9$

$\times 5 \quad \times 5$

$v = 45$

Name : _____

One-Step Equations: Integers

Mixed Operations Level 1: S2

Solve each equation.

1) $3 = n - 4$

$+4 \quad +4$

$7 = n$

2) $11 = 2 + x$

$-2 \quad -2$

$9 = x$

3) $\frac{c}{4} = 9$

$\times 4 \quad \times 4$

$c = 36$

4) $\frac{36}{6} = \frac{6y}{6}$

$6 = y$

5) $2 + z = 12$

$-2 \quad -2$

$z = 10$

6) $\frac{s}{11} = 3$

$\times 11 \quad \times 11$

$s = 33$

7) $p - 3 = 15$

$+3 \quad +3$

$p = 18$

8) $7 = \frac{k}{9}$

$\times 9 \quad \times 9$

$63 = k$

9) $6 = 5 + m$

$-5 \quad -5$

$1 = m$

10) $\frac{2q}{2} = \frac{10}{2}$

$q = 5$

Name : _____

LESSON 1

PROFICIENT

One-Step Equations: Integers

Mixed Operations Level 2: S2

Solve each equation.

1) $-\frac{s}{4} = -2$

$\times(-4) \quad \times(-4)$

$s = 8$

2) $-3 = \frac{p}{2}$

$\times 2 \quad \times 2$

$-6 = p$

3) $r + 5 = -10$

$-5 \quad -5$

$r = -15$

4) $6 = -3 + b$

$+3 \quad +3$

$9 = b$

5) $k - 1 = 11$

$+1 \quad +1$

$k = 12$

6) $-4u = 7$

$\frac{}{-4} \quad \frac{}{-4}$

$u = -\frac{7}{4} = -1\frac{3}{4}$

7) $2 = -18w$

$\frac{}{-18} \quad \frac{}{-18}$

$-\frac{1}{9} = w$

8) $-\frac{m}{3} = 5$

$\times(-3) \quad \times(-3)$

$m = -15$

9) $x + 2 = 14$

$-2 \quad -2$

$x = 12$

10) $\frac{56}{8} = \frac{8t}{8}$

$7 = t$

Name : _____

One-Step Equations: Integers

Mixed Operations Level 2: S3

Solve each equation.

1) $\frac{40}{-10} = \frac{-10c}{-10}$

$-4 = c$

2) $-2 + m = 8$

$+2 \quad +2$

$m = 10$

3) $w + 3 = -6$

$-3 \quad -3$

$w = -9$

4) $7 = \frac{t}{3}$

$\times 3 \quad \times 3$

$21 = t$

5) $-3 + x = -8$

$+3 \quad +3$

$x = -5$

6) $-\frac{a}{6} = 4$

$\times(-6) \quad \times(-6)$

$a = -24$

7) $\frac{6k}{6} = \frac{11}{6}$

$k = \frac{11}{6} = 1\frac{5}{6}$

8) $v - 4 = 8$

$+4 \quad +4$

$v = 12$

9) $-\frac{u}{8} = 8$

$\times(-8) \quad \times(-8)$

$u = -64$

10) $-5 = b - 2$

$+2 \quad +2$

$-3 = b$

Name : _____

One-Step Equations: Fractions

Mixed Operations Level 1: S3

Solve each equation.

1) $\frac{d}{\left(\frac{3}{2}\right)} = \frac{4}{9}$ $\times\frac{3}{2}$ $\times\frac{3}{2}$

$\frac{2}{3}\times\frac{3}{2}_{1} = \frac{2}{3}$

$d = \frac{2}{3}$

2) $t + \frac{7}{8} = \frac{9}{8}$ $-\frac{7}{8}$ $-\frac{7}{8}$

$\frac{9}{8} - \frac{7}{8} = \frac{2}{8} = \frac{1}{4}$

$t = \frac{1}{4}$

3) $-\frac{3}{2} = q - \frac{9}{2}$ $+\frac{9}{2}$ $+\frac{9}{2}$

$-\frac{3}{2} + \frac{9}{2} = \frac{6}{2} = \frac{3}{1}$

$3 = q$

4) $-\frac{5}{6}v = \frac{1}{6}$ $\frac{-5}{6}$ $\frac{-5}{6}$

$\frac{1}{6} \div \frac{5}{6} = \frac{1}{1\cancel{6}} \times \frac{\cancel{6}^{1}}{5} = \frac{1}{5}$

$v = -\frac{1}{5}$

5) $\frac{1}{5} = \frac{4}{3}a$ $\frac{4}{3}$ $\frac{4}{3}$

$\frac{1}{5} \div \frac{4}{3} = \frac{1}{5} \times \frac{3}{4} = \frac{3}{20}$

$a = \frac{3}{20}$

6) $\frac{8}{5} = r - \frac{4}{5}$ $+\frac{4}{5}$ $+\frac{4}{5}$

$\frac{8}{5} + \frac{4}{5} = \frac{12}{5}$

$r = \frac{12}{5} = 2\frac{2}{5}$

7) $-\frac{5}{2}c = -\frac{6}{5}$ $\frac{-5}{2}$ $\frac{-5}{2}$

$\frac{-6}{5} \div \frac{-5}{2} = \frac{-6}{5} \times \frac{2}{-5} = \frac{-12}{-25}$

$c = \frac{12}{25}$

8) $-\frac{9}{4} = \frac{u}{\left(\frac{1}{6}\right)}$ $\times\frac{1}{6}$ $\times\frac{1}{6}$

$\frac{-3}{\cancel{9}^{3}} \times \frac{1}{\cancel{6}_{2}} = -\frac{3}{8}$

$u = \frac{-3}{8}$

9) $-\frac{2}{7} = y + \frac{4}{7}$ $-\frac{4}{7}$ $-\frac{4}{7}$

$-\frac{2}{7} - \frac{4}{7} = -\frac{6}{7}$

$y = -\frac{6}{7}$

10) $k - \frac{1}{3} = \frac{2}{3}$ $+\frac{1}{3}$ $+\frac{1}{3}$

$\frac{2}{3} + \frac{1}{3} = \frac{3}{3} = 1$

$k = 1$

Name : _____

One-Step Equations: Decimals

Mixed Operations: S3

Solve each equation.

1) $q - 0.5 = -3.7$

$+0.5 \quad +0.5$

$3.7 - 0.5 = -3.2$

$q = -3.2$

2) $\frac{5k}{5} = \frac{2.5}{5}$

$5 \overline{)2.5}$ → 0.5, -25, 0

$k = 0.5$

3) $-2 = -\frac{a}{1.9}$

$\times(-1.9) \quad \times(-1.9)$

$1.9 \times 2 = 3.8$

$a = 3.8$

4) $n + 10 = 7.7$

$-10 \quad -10$

$10.10 - 7.7 = 2.3$

$n = -2.3$

5) $z - 1.5 = 6$

$+1.5 \quad +1.5$

$z = 7.5$

6) $\frac{4.8}{1.2} = \frac{1.2m}{1.2}$

$1.2 \overline{)48}$ → $4.$, -48, 0

$m = 4$

7) $t + 5 = 9.3$

$-5 \quad -5$

$t = 4.3$

8) $p - 4.9 = -2.1$

$+4.9 \quad +4.9$

$4.9 - 2.1 = 2.8$

$p = 2.8$

9) $\frac{b}{4} = 0.8$

$\times 4 \quad \times 4$

$b = 3.2$

10) $\frac{-8.28}{9.2} = \frac{9.2u}{9.2}$

$9.2 \overline{)8.28}$ → 0.9, -828, 0

$u = -0.9$

Name : _____

LESSON 1

EXTENDING

One-Step Equations

Mixed Operations: S2

Solve each equation.

1) $v - 10 = 12$

$+10 \quad +10$

$v = 22$

2) $\frac{x}{6} = -5$

$\times 6 \quad \times 6$

$x = -30$

3) $-\frac{k}{4.25} = -9.2$

$\times(-4.25) \quad \times(-4.25)$

$4.25 \times 9.2 = 1850 + 38250 = 39.100$

$k = 39.1$

4) $s - \frac{3}{8} = \frac{5}{8}$

$+\frac{3}{8} \quad +\frac{3}{8}$

$\frac{5}{8} + \frac{3}{8} = \frac{8}{8} = 1$

$s = 1$

5) $\frac{3}{7} = \frac{9}{7}u$

$\div\frac{9}{7} \quad \div\frac{9}{7}$

$\frac{3}{7} \div \frac{9}{7} = \frac{1}{3} \times \frac{7}{9} = \frac{1}{3}$

$u = \frac{1}{3}$

6) $3.8 = m - 0.8$

$+0.8 \quad +0.8$

$m = 4.6$

7) $-4.2 = 5.2 + t$

$-5.2 \quad -5.2$

$t = -9.4$

8) $\frac{1}{3} = \frac{w}{3\frac{1}{4}}$

$\times 3\frac{1}{4} \quad \times 3\frac{1}{4}$

$\frac{1}{3} \times \frac{13}{4} = \frac{13}{12} = 1\frac{1}{12}$

$w = 1\frac{1}{12}$

9) $\frac{-64}{8} = \frac{8r}{8}$

$r = -8$

10) $z + \frac{6}{5} = -\frac{8}{3}$

$-\frac{6}{5} \quad -\frac{6}{5}$

$-\frac{8}{3} - \frac{6}{5} = -\frac{40}{15} - \frac{18}{15} = -\frac{58}{15} = -3\frac{13}{15}$

$z = -3\frac{13}{15}$

Name : _____

One-Step Equations

Mixed Operations: S3

Solve each equation.

1) $\frac{4}{5} = -2\frac{1}{5}v$

$-2\frac{1}{5}$ $-2\frac{1}{5}$

$\frac{4}{5} \div \frac{-11}{5} = \frac{4}{5} \times \frac{-5}{11} = -\frac{4}{11}$

$v = -\frac{4}{11}$

2) $w + 4.4 = 5.3$

-4.4 -4.4

$w = 0.9$

3) $-2.6 = -\frac{p}{3.5}$

$\times(-3.5)$ $\times(-3.5)$

$2.6 \times 3.5 = 9.10$

$p = 9.1$

4) $\frac{u}{3} = 8$

$\times 3$ $\times 3$

$u = 24$

5) $\frac{5a}{8} = \frac{5}{5}$

$a = 1$

6) $-10 = 2 + s$

-2 -2

$-12 = s$

7) $m - \frac{5}{4} = \frac{1}{3}$

$+\frac{5}{4}$ $+\frac{5}{4}$

$\frac{1}{3} + \frac{5}{4} = \frac{4}{12} + \frac{15}{12} = \frac{19}{12} = 1\frac{7}{12}$

$m = 1\frac{7}{12}$

8) $\frac{3.55}{-7.1} = \frac{-7.1q}{-7.1}$

$7.1 \overline{)3.55}$ → 0.5, -355, 0

$q = -0.5$

9) $k - 6 = -9$

$+6$ $+6$

$k = -3$

10) $\frac{8}{5} + b = \frac{7}{2}$

$-\frac{8}{5}$ $-\frac{8}{5}$

$\frac{7}{2} - \frac{8}{5} = \frac{35}{10} - \frac{16}{10} = \frac{19}{10} = 1\frac{9}{10}$

$b = 1\frac{9}{10}$

DID YOU HEAR ABOUT . . .

A The	B lady	C who	D spent	E ten
F thousand	G dollars	H on	I a	J fur
K coat	L because	M she	N wanted	O to
P be	Q the	R miss	S in	T lynx ?

Solve each equation below. Find the solution in the appropriate answer column and notice the word next to it. Write this word in the box containing the letter of that exercise. Keep working and you'll hear about something that is really "fur" out!

Answers A–J:

19 BIG

I 16 A

C −18 WHO

−2 MORE

A 32 THE

F 7 THOUSAND

H −25 ON

J 27 FUR

B 55 LADY

E 3 TEN

41 WAS

D −70 SPENT

F −11 DOLLARS

(A) $\frac{1}{8}x = 4$ (×8, ×8) $x = 32$

(B) $\frac{1}{5}x = 11$ (×5, ×5) $x = 55$

(C) $\frac{1}{9}y = -2$ (×9, ×9) $y = -18$

(D) $\frac{1}{2}m = -35$ (×2, ×2) $m = -70$

(E) $\frac{6p}{6} = \frac{18}{6}$ $p = 3$

(F) $\frac{12t}{12} = \frac{84}{12}$ $t = 7$

(G) $\frac{3x}{3} = \frac{-33}{3}$ $x = -11$

(H) $\frac{-4n}{-4} = \frac{100}{-4}$ $n = -25$

(I) $\frac{-3u}{-3} = \frac{-48}{-3}$ $u = 16$

(J) $\frac{54}{2} = \frac{2v}{2}$ $v = 27$

Answers K–T:

−78 SHE M

−20 IN S

−1 IT

−9 COAT K

5 TO D

6 THE Q

36 WANTED N

−8 MISS R

−4 BE P

64 BECAUSE L

30 WARM

10 LYNX T

−14 MINK

(K) $\frac{-72}{8} = \frac{8x}{8}$ $x = -9$

(L) $\frac{1}{4}w = 16$ (×4, ×4) $w = 64$

(M) $13 = -\frac{1}{6}y$ (×(−6), ×(−6)) $y = -78$

(N) $-18 = -\frac{1}{2}y$ (×(−2), ×(−2)) $y = 36$

(O) $\frac{1}{2}r = \frac{5}{2}$ (×2, ×2) $r = 5$

(P) $-\frac{1}{3}t = \frac{4}{3}$ (×(−3), ×(−3)) $t = -4$

(Q) $-\frac{3}{4} = -\frac{1}{8}x$ (×(−8), ×(−8)) $x = 6$

(R) $\frac{11u}{11} = \frac{-88}{11}$ $u = -8$

(S) $\frac{400}{-20} = \frac{-20w}{-20}$ $w = -20$

(T) $\frac{58x}{58} = \frac{580}{58}$ $x = 10$

OBJECTIVE 4–d: To solve equations of the form $ax = b$, where a is an integer or unit fraction (solutions are integers).

SIGN UP

OBJECTIVE 4–f: To solve equations of the form $ax = b$, where a is an integer or fraction.

1. Sign on a waterbed:

V	I	N	Y	L
$8\frac{3}{4}$	-72	$\frac{2}{15}$	$-\frac{2}{3}$	$-10\frac{1}{2}$

R	E	S	T	I	N	G
-7	$-\frac{2}{7}$	$-2\frac{6}{7}$	$-6\frac{2}{3}$	-72	$\frac{2}{15}$	$4\frac{4}{9}$

P	L	A	C	E
$-1\frac{1}{10}$	$-10\frac{1}{2}$	18	$-8\frac{1}{3}$	$-\frac{2}{7}$

2. Sign on a chicken incubator:

C	H	E	E	P	E	R	S
$-8\frac{1}{3}$	$-7\frac{1}{2}$	$-\frac{2}{7}$	$-\frac{2}{7}$	$-1\frac{1}{10}$	$-\frac{2}{7}$	-7	$-2\frac{6}{7}$

B	Y
$4\frac{1}{4}$	$-\frac{2}{3}$

T	H	E
$-6\frac{2}{3}$	$-7\frac{1}{2}$	$-\frac{2}{7}$

D	O	Z	E	N
$-5\frac{1}{3}$	-45	$2\frac{1}{3}$	$-\frac{2}{7}$	$\frac{2}{15}$

TO DECODE THESE TWO SIGNS:
Solve each equation below and find your solution in the code. Each time the solution appears, write the letter of that exercise above it. Enjoy the "signery"!

(R) $\frac{-8x}{-8} = \frac{56}{-8}$ $x = -7$

(O) $\frac{1}{5}n = -9$ (×5) $n = -45$

(I) $24 = -\frac{1}{3}t$ (×(−3)) $t = -72$

(B) $\frac{4r}{4} = \frac{17}{4}$ $r = \frac{17}{4} = 4\frac{1}{4}$

(S) $\frac{-7u}{-7} = \frac{20}{-7}$ $u = -\frac{20}{7} = -2\frac{6}{7}$

(C) $8t - 5t = -25$
$\frac{3t}{3} = \frac{-25}{3}$ $t = -\frac{25}{3} = -8\frac{1}{3}$

(G) $-40 = m - 10m$
$\frac{-40}{-9} = \frac{-9m}{-9}$ $m = \frac{40}{9} = 4\frac{4}{9}$

(A) $\frac{2}{3}y = 12$ (÷$\frac{2}{3}$) $6 \times \frac{3}{1} = 18 = y$

(T) $\frac{3}{5}x = -4$ (÷$\frac{3}{5}$) $-\frac{4}{1} \times \frac{5}{3} = -\frac{20}{3} = -6\frac{2}{3} = x$

(D) $-\frac{3}{2}d = 8$ (÷$-\frac{3}{2}$) $\frac{8}{1} \times \frac{-2}{3} = \frac{-16}{3} = -5\frac{1}{3} = d$

(V) $5 = \frac{4}{7}w$ (÷$\frac{4}{7}$) $\frac{5}{1} \times \frac{7}{4} = \frac{35}{4} = 8\frac{3}{4} = w$

(H) $-3 = \frac{2}{5}v$ (÷$\frac{2}{5}$) $-\frac{3}{1} \times \frac{5}{2} = \frac{-15}{2} = -7\frac{1}{2} = v$

(L) $\frac{-4x}{-4} = \frac{42}{-4}$ $x = \frac{-42}{4} = \frac{-21}{2} = -10\frac{1}{2}$

(Z) $\frac{-35}{-15} = \frac{-15p}{-15}$ $p = \frac{35}{15} = 2\frac{5}{15} = 2\frac{1}{3}$

(Y) $\frac{3}{4}y = -\frac{1}{2}$ (÷$\frac{3}{4}$) $-\frac{1}{2} \times \frac{4}{3} = \frac{-4}{6} = -\frac{2}{3} = y$

(N) $\frac{5}{3}u = \frac{2}{9}$ (÷$\frac{5}{3}$) $\frac{2}{9} \times \frac{3}{5} = \frac{6}{45} = \frac{2}{15} = u$

(E) $-\frac{7}{8}m = \frac{1}{4}$ (÷$-\frac{7}{8}$) $\frac{1}{4} \times -\frac{8}{7} = -\frac{2}{7} = m$

(P) $4x - 9x = \frac{11}{2}$
$\frac{-5x}{-5} = \frac{\frac{11}{2}}{-5}$ $\frac{11}{2} \times \frac{-1}{5} = -\frac{11}{10} = -1\frac{1}{10} = x$