Solving Equations

isolate the variable equation inverse operations

1. _____ are mathematical operations that undo each other.

2. To solve an equation, you need to _____.

3. A(n) _____ is a mathematical statement that two expressions are equivalent.

Inverse operations

How do you "undo" addition? _____

How do you "undo" subtraction? _____

How do you "undo" multiplication? _____

How do you "undo" division? _____

Infinite Algebra 1

One-Step Equations

Name_____

Date_____ Period____

Solve each equation.

1) $26 = 8 + v$

2) $3 + p = 8$

3) $15 + b = 23$

4) $-15 + n = -9$

5) $m + 4 = -12$

6) $x - 7 = 13$

7) $m - 9 = -13$

8) $p - 6 = -5$

9) $v - 15 = -27$

10) $n + 16 = 9$

11) $-104 = 8x$

12) $14b = -56$

13) $-6 = \frac{b}{18}$

14) $10n = 40$

15) $\frac{v}{8} = 2$

16) $16 = \frac{k}{11}$

17) $-15x = 0$

18) $-17x = -204$

19) $21 = -7n$

20) $\frac{m}{4} = -13$

21) $-126 = 14k$

22) $-143 = -11x$

23) $-16 + x = -15$

24) $-5 = \frac{a}{18}$

25) $-17 = x - 15$

26) $n - 8 = -10$

27) $\frac{v}{7} = 8$

28) $a + 11 = 20$

29) $-7 + m = 8$

30) $18 + m = 8$

1A

- One-Step Equations
Fractions & Decimals

Name: _____ E#_____

To solve a one-step equation with fractions/decimals:

1) Do the _____ operation.

2) To get "rid" of a fraction, multiply by the _____.

YOU MUST SHOW ALL OF YOUR WORK AND CHECK EVERY ANSWER

1) $a-\frac{1}{2}=-\frac{2}{3}$	Check:	2) $b-1\frac{3}{5}=4\frac{1}{2}$	Check:
Solution:		Solution:	
3) $c+4\frac{1}{2}=5\frac{2}{3}$	Check:	4) $\frac{2}{3}d=10$	Check:
Solution:		Solution:	
5) $3\frac{1}{3}=5e$	Check:	6) $\frac{-6}{5}f=12$	Check:
Solution:		Solution:	

7) $g + 3.8 = 4.3$	Check:	8) $h - 2.4 = 0.2$	Check:
Solution:		Solution:	
9) $\frac{i}{3.2} = 4.5$	Check:	10) $0.3j = -16.8$	Check:
Solution:		Solution:	
11) $1.2k = 3.6$	Check:	12) $-5m = 19.35$	Check:
Solution:		Solution:	
13) $\frac{4}{9}n = -8$	Check:	14) $-\frac{1}{2}p = -1\frac{2}{5}$	Check:
Solution:		Solution:	

2A

ork - One-Step Equations

Name: _____ E#_____

YOU MUST SHOW ALL OF YOUR WORK AND CHECK EVERY ANSWER

1) $36 - (-n) = 21$	Check:	2) $78 + r = -15$	Check:
Solution:		Solution:	
3) $8j = 96$	Check:	4) $\frac{y}{19} = -8$	Check:
Solution:		Solution:	
5) $f + (-43) = -29$	Check:	6) $-13z = -78$	Check:
Solution:		Solution:	
7) $-180 = 15m$	Check:	8) $-\frac{j}{12} = -81$	Check:
Solution:		Solution:	

9) $\frac{12}{a} = 75$	Check:	10) $243 = 27r$	Check:
Solution:		Solution:	
11) $-9n = -117$	Check:	12) $68 + k = 141$	Check:
Solution:		Solution:	
13) $9 = \frac{-g}{27}$	Check:	14) $-107 = j - 49$	Check:
Solution:		Solution:	
15) $-84 = \frac{294}{d}$	Check:	16) $s - 92 = -307$	Check:
Solution:		Solution:	

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Name_____

One-Step Equations With Fractions

Date_____ Period____

Solve each equation.

1) $5\frac{1}{2} + p = 6$

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

3) $-\frac{3}{4}b = 2$

4) $x - 3 = -5\frac{1}{2}$

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

6) $x - 1\frac{1}{4} = -6$

7) $2\frac{1}{10}n = 1\frac{1}{6}$

8) $9\frac{1}{3} = \frac{5}{3}n$

9) $5\frac{2}{7} + k = 2\frac{27}{70}$

10) $2\frac{5}{12} = -3\frac{1}{4} + k$

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Special One-Step Equations

$$-12 + b = 10$$
$$+12 \qquad +12$$
$$b = 22$$

$$+5 - a = 14$$
$$-5 \qquad -5$$
$$-a = 9$$
$$\boxed{a = -9}$$

$$-7 - a = 14$$
$$+7 \qquad +7$$
$$-a = 21$$
$$a = -21$$

$$10 - b = 4$$
$$-10 \qquad -10$$
$$-b = -6$$
$$\frac{-1 \cdot b}{-1} = \frac{-6}{-1}$$
$$\boxed{b = 6}$$

$$-14 - a = 12$$
$$+14 \qquad +14$$
$$-a = 26$$
$$A = -26$$

$$10 - b = -17$$
$$-10 \qquad -10$$
$$-b = -27$$
$$b = 27$$
Boom!!

4A

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Name_____

Two-Step Equations

Date_____ Period____

Solve each equation.

1) $6 = \frac{a}{4} + 2$

2) $-6 + \frac{x}{4} = -5$

3) $9x - 7 = -7$

4) $0 = 4 + \frac{n}{5}$

5) $-4 = \frac{r}{20} - 5$

6) $-1 = \frac{5 + x}{6}$

7) $\frac{v + 9}{3} = 8$

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

9) $-9x + 1 = -80$

10) $-6 = \frac{n}{2} - 10$

11) $-2 = 2 + \frac{v}{4}$

12) $144 = -12(x + 5)$

5

13) $-15 = -4m + 5$

14) $10 - 6v = -104$

15) $8n + 7 = 31$

16) $-9x - 13 = -103$

17) $\dfrac{n+5}{-16} = -1$

18) $-10 = -10 + 7m$

19) $-10 = 10(k - 9)$

20) $\dfrac{m}{9} - 1 = -2$

21) $9 + 9n = 9$

22) $7(9 + k) = 84$

23) $8 + \dfrac{b}{-4} = 5$

24) $-243 = -9(10 + x)$

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Name_____

Two-Step Equations With Integers

Date_____ Period____

Solve each equation.

1) $\frac{r}{10} + 4 = 5$

2) $\frac{n}{2} + 5 = 3$

3) $3p - 2 = -29$

4) $1 - r = -5$

5) $\frac{k - 10}{2} = -7$

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

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

8) $\frac{9 + m}{3} = 2$

9) $\frac{-5 + x}{22} = -1$

10) $4n - 9 = -9$

11) $\frac{x + 9}{2} = 3$

12) $\frac{-12 + x}{11} = -3$

13) $\frac{-4 + x}{2} = 6$

14) $-5 + \frac{n}{3} = 0$

6

15) $\frac{p}{4} + 8 = 7$

16) $9 + \frac{n}{4} = 15$

17) $6 + \frac{x}{2} = 4$

18) $\frac{b+11}{3} = -2$

19) $\frac{a-10}{3} = -4$

20) $-12r + 4 = 100$

21) $\frac{m}{16} - 9 = -8$

22) $-7 + 4r = -15$

23) $\frac{m-13}{2} = -8$

24) $-5x + 13 = -17$

25) $\frac{k+10}{-2} = 5$

26) $\frac{p+8}{-2} = 10$

27) $-14r - 19 = 303$

28) $\frac{x}{-4} - 5 = -8$

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Homework - Two-Step Equations

Name: _____ E#_____

Solve each equation.

1) $\frac{r}{10} + 4 = 5$

2) $\frac{n}{2} + 5 = 3$

3) $3p - 2 = -29$

4) $1 - r = -5$

5) $\frac{k - 10}{2} = -7$

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

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

8) $\frac{9 + m}{3} = 2$

9) $\frac{-5 + x}{22} = -1$

10) $4n - 9 = -9$

11) $\frac{x + 9}{2} = 3$

12) $\frac{-12 + x}{11} = -3$

13) $\frac{-4 + x}{2} = 6$

14) $-5 + \frac{n}{3} = 0$

7

15) $\frac{p}{4} + 8 = 7$

16) $9 + \frac{n}{4} = 15$

17) $6 + \frac{x}{2} = 4$

18) $\frac{b + 11}{3} = -2$

19) $\frac{a - 10}{3} = -4$

20) $-12r + 4 = 100$

21) $\frac{m}{16} - 9 = -8$

22) $-7 + 4r = -15$

23) $\frac{m - 13}{2} = -8$

24) $-5x + 13 = -17$

25) $\frac{k + 10}{-2} = 5$

26) $\frac{p + 8}{-2} = 10$

27) $-14r - 19 = 303$

28) $\frac{x}{-4} - 5 = -8$

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