

Name _____

Mrs. Roubos

Date _____

8A Period _____

Review for Algebra Test

Solve the following literal equations.

1) Solve for p: $r = wp$

2) Solve for c: $pc + rg = 2k$

3) Solve for B: $V = \frac{1}{3}Bh$

4) Solve for d: $a = bcd$

5) Solve for y: $4(y + z) = 9$

6) Solve for q: $r = \frac{tq}{2}$

Solve the following equations for x. Show all work.

7) $5 + 3x = 5x - 19$

8) $\frac{1}{2} - \frac{5}{8}x = \frac{7}{8}x + \frac{7}{2}$

9) $2x - 2(2x + 6) = 3$

10) $\frac{x}{3} - 8 = -2$

11) $0.4x - 0.7 = 0.22$

The following equation has been solved for you. List the appropriate property that has been used.

12) $2(2x + 5) - 8x = -4$

Given

$4x + 10 - 8x = -4$

$4x - 8x + 10 = -4$

$(4 - 8)x + 10 = -4$

$-4x + 10 = -4$

$\underline{-10} \quad \underline{-10}$

$\frac{-4x}{-4} = \frac{-14}{-4}$

$x = 3.5$

Solve the following equations and list the properties used

13) $3(x - 1) = 2(x + 3)$

14) $21 + 3c = 6 - 6(1 - 4c)$

Write an algebraic expression or equation for each:

15) 38 more than a number

16) 4 less than $\frac{1}{2}$ of a number

17) the quotient of 9 and a number

18) The sum of 6 times a number and 2 times a number increased by 10 is -35

19) Solve for a: $3(a - 9) = -21$

(a) {2}

(b) {-2}

(c) {16}

(d) {-16}

20) $12x + 4x + 2y + 3y = x(12 + 4) + y(2 + 3)$ Is an example of which property?

(a) associative

(b) identity

(c) distribution

(d) inverse

21) $-(x - 12) =$

(a) $-x + 12$

(b) $-x - 12$

(c) $x - 12$

(d) $x + 12$

22) Combine like terms: $4xy + 3x + 5y - 10yx$

(a) $2xy$

(b) $-6xy + 8yx$

(c) $-6xy + 3x + 5y$

(d) $14xy$

23) Which of the following terms can be combined with y ?

(a) $2x$

(b) -3

(c) $-4y$

(d) xy

24) The lengths of the side of triangle are: y , $y+1$, and 7 . If the perimeter is 56 units, what is the value of y ?

(a) 24

(b) 25

(c) 31

(d) 32

25) Is the equation $3(2y - 4) = -18$ equivalent to $6y - 12 = -18$?

(a) yes using the associative property of multiplication

(b) yes using the commutative property of addition

(c) yes using the distributive property

(d) no the equations are not equivalent

26) Which number does not have a reciprocal?

(a) $\frac{1}{100}$

(b) 4

(c) 0

(d) -1

27) Which equation is equivalent to $5x - 2(7x + 1) = 14x$

- (a) $-9x + 1 = 14x$
- (b) $-9x - 2 = 14x$
- (c) $-9x + 2 = 14x$
- (d) $12x - 1 = 14x$

28) Solve $3(x + 5) = 2x + 35$

Step 1: $3x + 15 = 2x + 35$

Step 2: $5x + 15 = 35$

Step 3: $5x = 35$

Step 4: $x = 4$

Which is the first incorrect step?

- (a) Step 1
- (b) Step 2
- (c) Step 3
- (d) Step 4

29) The total cost (c) in dollars for renting a car for (n) days is given by the equation: $c = 120 + 60n$.
If the total cost was \$360, for how many days was the car rented?

- (a) 2
- (b) 4
- (c) 6
- (d) 8

30) When is this statement true?

"The additive inverse of a number is less than the original number?"

- (a) Never true
- (b) Always true
- (c) true for positive numbers
- (d) true for negative numbers

Review for Algebra Test

Solve the following literal equations.

1) Solve for p: $r = wp$

$$p = \frac{r}{w} \quad w \neq 0$$

2) Solve for c: $pc + rg = 2k$

$$c = \frac{2k - rg}{p} \quad p \neq 0$$

3) Solve for B: $3V = Bh$

$$B = \frac{3V}{h} \quad h \neq 0$$

4) Solve for d: $\frac{a}{bc} = d$

$$d = \frac{a}{bc} \quad b \neq 0 \text{ or } c \neq 0$$

5) Solve for y: $4(y + z) = 9$

$$4y + 4z = 9$$

$$-4z \quad -4z$$

$$4y = 9 - 4z$$

$$y = \frac{9 - 4z}{4} \quad \text{or} \quad y = \frac{9}{4} - z$$

6) Solve for q: $2r = tq$

$$q = \frac{2r}{t} \quad t \neq 0$$

Solve the following equations for x. Show all work.

7) $5 + 3x = 5x - 19$

$$5 = 2x - 19$$

$$+19 \quad +19$$

$$\frac{24}{2} = \frac{2x}{2}$$

$$x = 12$$

8) $\frac{1}{2} - \frac{5}{8}x = \frac{7}{8}x + \frac{7}{2}$

$$\frac{1}{2} = \frac{3}{2}x + \frac{7}{2}$$

$$-\frac{7}{2} \quad -\frac{7}{2}$$

$$\left(\frac{2}{3}\right) \left(-\frac{3}{2}\right) \left(\frac{3}{2}x\right) \left(\frac{2}{3}\right)$$

$$9) 2x - 2(2x + 6) = 3$$

D
C
M
S

$$\begin{aligned} 2x - 4x - 12 &= 3 \\ -2x - 12 &= 3 \\ +12 \quad +12 & \\ \hline -2x &= 15 \\ -2 \quad -2 & \\ \hline x &= -7\frac{1}{2} \end{aligned}$$

SADMEP

$$10) \frac{x}{3} - 8 = -2$$

$$\begin{aligned} \frac{x}{3} - 8 &= -2 \\ +8 \quad +8 & \\ \hline \frac{x}{3} &= 6 \\ (3) \left(\frac{x}{3} \right) &= 6(3) \\ x &= 18 \end{aligned}$$

$$11) 0.4x - 0.7 = 0.22$$

$$\begin{aligned} +.7 \quad +.7 & \\ \hline .4x &= .92 \\ .4 \quad .4 & \\ \hline x &= 2.3 \end{aligned}$$

The following equation has been solved for you. List the appropriate property that has been used.

$$12) 2(2x + 5) - 8x = -4$$

$$4x + 10 - 8x = -4$$

$$4x - 8x + 10 = -4$$

$$(4 - 8)x + 10 = -4$$

$$-4x + 10 = -4$$

$$\frac{-4x}{-4} = \frac{-14}{-4}$$

$$x = 3.5$$

Given

Distributive Property

Commutative Property of addition

Distributive Property of multiplication

Combine like terms

Subtraction Prop. of Equality

Division Prop. of Equality

~~D~~
~~C~~
M
S

Solve the following equations and list the properties used

13) $3(x-1) = 2(x+3)$
 $3x - 3 = 2x + 6$ Dist Prop.
 $\frac{-2x \quad -2x}{x - 3 = 6}$ Sub Prop of Equal
 $\frac{+3 \quad +3}{x = 9}$ Add. Prop of Equal
 $x = 9$

14) $21 + 3c = 6(-6(1-4c))$
 $21 + 3c = 6 - 6 + 24c$ Dist Prop.
 $\frac{-3c \quad -3c}{21 = 21c}$ Additive Inverse (C)
 $\frac{21}{21} = \frac{21c}{21}$ Sub. Prop of Equal
 $c = 1$

Write an algebraic expression for each:

15) 38 more than a number
 $x + 38$

more than } switch
 less than } order
 sub. prop

16) 4 less than $\frac{1}{2}$ of a number
 $\frac{1}{2}x - 4$

() the quotient of 9 and a number
 $\frac{9}{x}$

18) The sum of 6 times a number and 2 times a number increased by 10 is -35

$(6x + 2x) + 10 = -35$

19) Solve for a: $3(a-9) = -21$

(a) {2}

(b) {-2}

(c) {16}

(d) {-16}

$3(a-9) = -21$
 $3a - 27 = -21$
 $\frac{+27 \quad +27}{3a = 6}$
 $\frac{3a = 6}{3 \quad 3}$
 $a = 2$

20) $12x + 4x + 2y + 3y = x(12+4) + y(2+3)$ Is an example of which property?

(a) associative

(b) identity

(c) distribution

(d) inverse

$4x - 4x + 6$
 $0 + 6$

21) $-(x - 12) =$

$-1(x - 12)$
 $-x + 12$

(a) $-x + 12$

(b) $-x - 12$

(c) $x - 12$

(d) $x + 12$

22) Combine like terms: $4xy + 3x + 5y - 10yx$

(a) $2xy$

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(d) $14xy$

23) Which of the following terms can be combined with y ?

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(d) xy

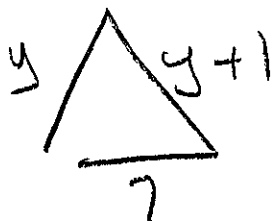
24) The lengths of the side of triangle are: y , $y+1$, and 7 . If the perimeter is 56 units, what is the value of y ?

(a) 24

(b) 25

(c) 31

(d) 32



$y + y + 1 + 7 = 56$

$2y + 8 = 56$

$\begin{array}{r} 2y + 8 = 56 \\ -8 \quad -8 \\ \hline 2y = 48 \\ y = 24 \end{array}$

$y = 24$

25) Is the equation $3(2y - 4) = -18$ equivalent to $6y - 12 = -18$?

$6y - 12 = -18$

(a) yes using the associative property of multiplication

(b) yes using the commutative property of addition

(c) yes using the distributive property

(d) no the equations are not equivalent

*26) Which number does not have a reciprocal? (Flip the fraction)

Keep the sign

(a) $\frac{1}{100}$

(b) $\frac{4}{1}$

(c) $\frac{0}{1}$

(d) $-\frac{1}{7}$

$\frac{100}{1}$

$\frac{1}{4}$

$\frac{0}{1}$ NOT Real

imaginary

Which equation is equivalent to $5x - 2(7x + 1) = 14x$

- (a) $-9x + 1 = 14x$
- (b) $-9x - 2 = 14x$**
- (c) $-9x + 2 = 14x$
- (d) $12x - 1 = 14x$

$$5x - 14x - 2 = 14x$$

$$-9x - 2 = 14x$$

28) Solve $3(x + 5) = 2x + 35$

- Step 1: $3x + 15 = 2x + 35$
- Step 2: $5x + 15 = 35$
- Step 3: $5x = 35$
- Step 4: $x = 4$

$$3(x + 5) = 2x + 35$$

$$3x + 15 = 2x + 35$$

$$\begin{array}{r} -2x \\ \hline x + 15 = 35 \end{array}$$

Which is the first incorrect step?

- (a) Step 1
- (b) Step 2**
- (c) Step 3
- (d) Step 4

The total cost (c) in dollars for renting a car for (n) days is given by the equation: $c = 120 + 60n$. If the total cost was \$360, for how many days was the car rented?

- (a) 2
- (b) 4**
- (c) 6
- (d) 8

$$c = 120 + 60n$$

$$360 = 120 + 60n$$

$$\begin{array}{r} -120 \\ \hline 240 = 60n \\ \hline n = 4 \end{array}$$

30) When is this statement true?

"The additive inverse of a number is ^{smaller} less than the original number?"

- (a) Never true
- (b) Always true
- (c) true for positive numbers**
- (d) true for negative numbers

→ change the sign

$$-6 \rightarrow 6 \quad 6 < -6 \quad \times$$

$$6 \rightarrow -6 \quad -6 < 6 \quad \checkmark$$

