

Name _____
Mrs. Roumbos

Date _____
8R Period _____

Review for Algebra Test

Add the following monomials: ① Add the coefficients
② Keep the exponents the same

1) $4rs + 3rs$

2) $3x + 3y$

3) $-4y^5 + 6y^5$

Subtract the following monomials: ① Subtract the coefficients
② Keep the exponents the same

1) $2x^2 - 3x^2$

2) $12a^3 - 5a^3$

3) $9r^3y^6 - 2r^3y^3$

} Must
be
like
terms
to
combine

Solve the following equations: Distribute (multiply)
Combine like terms (on the same side) (same operation)
Move the smaller variable to the larger (across = sign) (opposite operation)
Solve the remaining equation

1) $x + 12 = 7$

2) $13 + a = -2$

3) $3x + 12 = 5x + 2$

4) $-5d = 10$

5) $9r - 11 - 2r = 59$

6) $\frac{1}{2}d = 12$

$$7) 6 + 2(x - 5) = 16$$

$$8) 4x + 8 + 2x = 20$$

$$9) 13 + 2y - y = 16$$

$$10) \frac{2}{5}x - 8 = 2$$

$$11) 7y - 9 = 3y + 19$$

$$12) 3(x - 8) = x + 4$$

$$13) 4r + 7r = 55$$

$$14) -10y = 30$$

$$15) .5x + 3.2 = 10.8$$

$$16) \frac{3}{4}(4x - 12) = 18$$

$$17) 12(0.5x - 5) = 6(-x + 10)$$

$$18) 4 - 15 = 4y + 17$$

* Equation \rightarrow has an = sign

Simplify the following algebraic expressions \rightarrow NO = sign

19) $6x^2y + 2$ when $x = 3$ and $y = 4$

20) $8ab^2c$ when $a = -3$, $b = 5$ and $c = 2$

21) $ab + ac + ba$ when $a = 4$, $b = 3$ and $c = 1$

Problem in ()

Exponents

Solve from left to right $\left\{ \begin{array}{l} \text{M/D} \rightarrow \cdot / \div \\ \text{A/S} \rightarrow + / - \end{array} \right.$

Steps

① Substitute using ()

② Simplify using PEMDAS

6 x
↑

Coefficient
(# with variable)

6
↑

Constant
(# without variable)



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Review for Algebra Test

① Add the coefficients

Add the following monomials:

② Keep the exponents the same

1) $4rs + 3rs$

$7rs$

2) $3x + 3y$

Can't add, not like terms

3) $-4y^5 + 6y^5$

$2y^5$

Subtract the following monomials:

① Subtract the coefficients

② Keep exponents the same

1) $2x^2 - 3x^2$

$-1x^2$ or $-x^2$

2) $12a^3 - 5a^3$

$7a^3$

3) $9xy^6 - 2xy^3$

Can't subtract not like terms

Solve the following equations:

Distribute (multiply)
Combine like terms (on the same side)
Move smaller variable to larger or (across = sign)
Solve remaining equation

1) $x + 12 = 7$

$\begin{array}{r} x + 12 = 7 \\ -12 \quad -12 \\ \hline x = -5 \end{array}$

2) $13 + a = -2$

$\begin{array}{r} 13 + a = -2 \\ -13 \quad -13 \\ \hline a = -15 \end{array}$

3) $3x + 12 = 5x + 2$

$\begin{array}{r} 3x + 12 = 5x + 2 \\ -3x \quad -3x \\ \hline 12 = 2x + 2 \\ -2 \quad -2 \\ \hline 10 = 2x \\ \frac{10}{2} = \frac{2x}{2} \\ x = 5 \end{array}$

4) $-5d = 10$

$\begin{array}{r} -5 \cdot d = 10 \\ \frac{-5 \cdot d}{-5} = \frac{10}{-5} \\ \hline d = -2 \end{array}$

5) $9r - 11(-2) = 59$

$\begin{array}{r} 9r - 11(-2) = 59 \\ 9r - 11 = 59 \\ +11 \quad +11 \\ \hline 9r = 70 \\ \frac{9r}{9} = \frac{70}{9} \\ r = \frac{70}{9} \end{array}$

6) $\frac{1}{2}d = 12$

$\begin{array}{r} \left(\frac{2}{1}\right) \left(\frac{1}{2}d\right) = \left(\frac{2}{1}\right) \left(\frac{24}{1}\right) \\ \hline d = 24 \end{array}$

D
C
M
S

$$7) 6 + 2(x - 5) = 16$$

$$\downarrow$$

$$\textcircled{6} + 2x - \textcircled{10} = 16$$

$$\begin{array}{r} -4 + 2x = 16 \\ +4 \quad +4 \end{array}$$

$$\frac{2x = 20}{2 \quad 2}$$

$$\boxed{x = 10}$$

D
C
M
S

$$8) 4x + 8 + 2x = 20$$

$$6x + 8 = 20$$

$$\begin{array}{r} -8 \quad -8 \\ \hline 6x = 12 \\ \frac{6}{6} \quad \frac{6}{6} \end{array}$$

$$\boxed{x = 2}$$

D
C
M
S

$$9) 13 + 2y - y = 16$$

$$1y + 13 = 16$$

$$\begin{array}{r} -13 \quad -13 \\ \hline 1y = 3 \\ \frac{1}{1} \quad \frac{1}{1} \end{array}$$

$$\boxed{y = 3}$$

D
C
M
S

$$10) \frac{2}{5}x - 8 = 2$$

$$\begin{array}{r} +8 \quad +8 \\ \hline \left(\frac{5}{2}\right) \left(\frac{2}{5}x\right) = \left(\frac{5}{2}\right) \left(\frac{10}{2}\right) \\ \boxed{x = 25} \end{array}$$

D
C
M
S

$$11) 7y - 9 = 3y + 19$$

$$\begin{array}{r} -3y \quad -3y \\ \hline 4y - 9 = 19 \\ +9 \quad +9 \\ \hline 4y = 28 \\ \frac{4}{4} \quad \frac{4}{4} \end{array}$$

$$\boxed{y = 7}$$

D
C
M
S

$$12) 3(x - 8) = x + 4$$

$$3x - 24 = x + 4$$

$$\begin{array}{r} -x \quad -x \\ \hline 2x - 24 = 4 \\ +24 \quad +24 \\ \hline 2x = 28 \\ \frac{2}{2} \quad \frac{2}{2} \end{array}$$

$$\boxed{x = 14}$$

D
C
M
S

$$13) 4r + 7r = 55$$

$$\frac{11r = 55}{11 \quad 11}$$

$$\boxed{r = 5}$$

D
C
M
S

$$14) -10y = 30$$

$$\begin{array}{r} -10 \cdot y = 30 \\ -10 \quad -10 \end{array}$$

$$\boxed{y = -3}$$

D
C
M
S

$$15) .5x + 3.2 = 10.8$$

$$\begin{array}{r} -3.2 \quad -3.2 \\ \hline .5x = 7.6 \\ \cdot 5 \quad \cdot 5 \end{array}$$

$$\boxed{x = 15.2}$$

D
C
M
S

$$16) \frac{3}{4}(4x - 12) = 18$$

$$3x - 9 = 18$$

$$\begin{array}{r} +9 \quad +9 \\ \hline 3x = 27 \\ \frac{3}{3} \quad \frac{3}{3} \end{array}$$

$$\boxed{x = 9}$$

D
C
M
S

$$17) 12(0.5x - 5) = 6(-x + 10)$$

$$6x - 60 = -6x + 60$$

$$\begin{array}{r} +6x \quad +6x \\ \hline 12x - 60 = 60 \\ +60 \quad +60 \\ \hline 12x = 120 \\ \frac{12}{12} \quad \frac{12}{12} \end{array}$$

$$\boxed{x = 10}$$

D
C
M
S

$$18) 4 - 15 = 4y + 17$$

$$-11 = 4y + 17$$

$$\begin{array}{r} -17 \quad -17 \\ \hline -28 = 4y \\ \frac{-28}{4} = \frac{4y}{4} \end{array}$$

$$\boxed{y = -7}$$

Equation \rightarrow has $=$ sign
Simplify the following algebraic expressions \rightarrow No $=$ sign

$6x$
 \uparrow
Coefficient

6
 \uparrow
Constant

19) $6x^2y + 2$ when $x=3$ and $y=4$

$$6 \cdot (3)^2 \cdot (4) + 2$$
$$6 \cdot 9 \cdot 4 + 2$$
$$216 + 2 = \boxed{218}$$

20) $8ab^2c$ when $a=-3$, $b=5$ and $c=2$

$$8 \cdot (-3) \cdot (5)^2 \cdot (2)$$
$$8 \cdot (-3) \cdot 25 \cdot 2$$
$$\boxed{-1200}$$

21) $ab + ac + ba$ when $a=4$, $b=3$ and $c=1$

$$(4) \cdot (3) + (4) \cdot (1) + (3) \cdot (4)$$
$$12 + 4 + 12$$
$$\boxed{28}$$

Problem in ()

Exponents

Solve from left to right }
M/D \cdot / \div
A/S $+ / -$

Steps:

① Substitute using ()

② Simplify using PEMDAS

