

Algebra Review Worksheet Key

C1WS1 KEY

By: Dr. Robert Belford

Algebra Review Worksheet 1:

Note, you may have to look these terms up on the web, or go to the class web site and look at the lecture notes.

1. Commutative Properties

a. Define the Commutative Property of Addition. The sum is the same regardless of the order in which addition is performed

b. Using the Commutative Property of Addition, rewrite the following arithmetic application (do not answer it, that is, do not give 5 as the answer)

$$2+3 = 3 + 2$$

c. Using the Commutative Property of Addition, rewrite the following algebraic application: $A+B= B + A$

d. Define the Commutative Property of Multiplication. The product is the same regardless of the order in which multiplication is performed

e. Using the Commutative Property of Multiplication, rewrite the following arithmetic application (do not answer it, that is, do not give 6 as the answer)

$$2 \times 3 = 3 \times 2$$

f. Using the Commutative Property of Multiplication, rewrite the following algebraic application:

$$A \times B= B \times A$$

2. Associative Properties

a. Define the Associative Property of Addition The sum is the same regardless the order in which the addends are grouped

b. Using the Associative Property of Addition, rewrite the following arithmetic application (do not answer it, that is, do not give 9 as the answer)

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

c. Using the Associative e Property of Addition, rewrite the following algebraic application: $(A+B) + C = A+(B+C)$

d. Define the Associative Property of Multiplication. The product is the same regardless the order in which the factors are grouped

e. Using the Associative Property of Multiplication, rewrite the following arithmetic application (do not answer it, that is, do not give 24 as the answer)

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$$(2 \times 3) \times 4 = 2 \times (3 \times 4)$$

f. Using the Associative Property of Multiplication, rewrite the following algebraic application:

$$(A \times B) \times C = A \times (B \times C)$$

3. Distributive Property

a. Define the Distributive Property . The product of a number times a sum is equal to the sum of that number times each addend in the sum

b. Using the Distributive Property, rewrite the following arithmetic application (do not answer it, that is, do not give 20 as the answer)

$$(2 + 3) \times 4 = 2(4) + 3(4)$$

c. Using the Distributive Property, rewrite the following algebraic application:

$$(A + B) \times C = AC + BC$$

d. Rewrite the following to a form with just one multiplication step (note XY means X times Y, or $X \times Y$), so 3.c can be written as $(A+B)C$ or $C(A+B)$

$$XY + XZ = X(Y+Z)$$

4. Exponentiation

a. Define the Exponentiation . repetition of addition

b. Rewrite 2^4 arithmetically, do not give the answer of 16.

$$2 \times 2 \times 2 \times 2$$

c. What does X^n mean? . X time X n times

d. Solve for 3^5 (give a number) **243**

5. Roots of a number

a. Define what the square root of a number means What number times itself equals a number, or what number to the power of $1/2$ equals a number

b. What is the square root of 16? **4**

c. What is the square root of 20? **4.472135955**

d. Define what the cube root of a number means What number cubed equals a number, or what number to the power of $1/3$ equals a number

e. What is the cube root of 64? **4**

f. What is the cube root of 20? **2.714417617**

g. Define what the fourth root of a number means What number when multiplied by itself four times equals a number, or what number to the power of 1/4 equals a number

h. What is the fourth root of 16? **2**

i. What is the fourth root of 20? **2.114742527**

Algebraic Problems:

Solve the following for A

$$a. A(X+Y)=Z \quad A = \frac{Z}{X+Y}$$

$$b. (AX+Y)=Z \quad A = \frac{Z-Y}{X}$$

$$c. (AX+AY)=Z \quad A = \frac{Z}{X+Y}$$

$$e. (AX+Y)Z=1 \quad A = \frac{1/Z - Y}{X}$$

$$f. \frac{A}{X+Y} = Z \quad A = Z(X+Y)$$

$$g. \frac{1}{AX+AY} = Z \quad X+Y$$

$$h. \frac{1}{X+AY} = Z \quad A = \frac{1/Z - X}{Y}$$

$$i. \frac{A}{X+Y} = ZA + 3 \quad A = \frac{3(X+Y)}{1-Z(X+Y)}$$

$$j. \frac{A}{X+Y} = ZA + D \quad A = \frac{D(X+Y)}{1-Z(X+Y)}$$

$$k. \frac{A+P}{X+Y} = ZA + D \quad A = \frac{D(X+Y) - P}{1-Z(X+Y)}$$