- euclid.nmu.edu/njoshthom/Teaching/MA115 – syllabus

Name:

Chapter P :: Real Numbers - Exponents, Radicals and Factoring :: Math 115

1. Set notation helps us communicate collections of numbers effectively. Find the indicated sets if

$$A = \{1, 3, 5, 7\}, B = \{2, 4, 6, 8\} \text{ and } C = \{7, 8, 9\}$$

union

(a) $A \cup B$ = in A or B $=$ {1, 2, 3, 4, 5, 6, 7, 8}

(b) $A \cap B$ = in A and in B $=$ ϕ ← empty set

(c) $B \cap C$ = {8}

2. Find the indicated sets if

$A = \{x \mid x < 4\}$ and $C = \{x \mid -1 < x \leq 6\}$ = (-1, 6]

(a) $A \cup C$

(b) $A \cap C$

(such that; any real # x)

= $(-\infty, 4)$

3. The number line:

Graph the set $(-2, 0) \cup (-1, 1)$

Graph the set $[-4, 6) \cap [0, 8)$

PEMDAS =

4. Name the property illustrated:

$2x + 5 = 5 + 2x$ commutative

$(2x + 5) + 7y = 2x + (5 + 7y)$ associative

$A(C + D) = AC + AD$ distributive

30 = 24 + 6

$3(10) = 3(8 + 2) = 3 \cdot 8 + 3 \cdot 2$

5. Is this true of false? $(A + B)(C + D) = (A + B)C + (A + B)D$

A + B = E

$E(C + D) = EC + ED$

6. Simplify into one power of two. $4^x \cdot 2^y =$ $2^{\square}$

$4^x \cdot 2^y = 2^{\square}$

$\| $

$[2^2]^x \cdot 2^y = 2^{2x} \cdot 2^y = 2^{2x+y}$

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key

mult. like bases ⇒ add exponents

$A^m \cdot A^n = A^{m+n}$

raise a power to a power ⇒ mult. powers

$(A^m)^n = A^{m \cdot n}$

$8 \cdot 4 = 32$

$2^3 \cdot 2^2 = 2^5 = 2^{3+2}$

$(2^3)^2 = 2^3 \cdot 2^3 = 2^{3+3} = 2^{2 \cdot 3}$

7. Simplify $(2^2)^5$

8. Simplify $(y+x)^3(y+x)^{-5}$

$= (y+x)^{3+(-5)} = (y+x)^{-2} = \frac{1}{(y+x)^2}$

$(y+x)^3 \cdot \frac{1}{(y+x)^5} = \frac{(y+x)^3}{(y+x)^5}$

9. Simplify $\left(\frac{xy}{4}\right)^3 \left(\frac{2x^2}{4y}\right)^5$