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## Chapter 1: Heart of Algebra — Problem Solving Skills (Easy)

### Math Practice & Solution Sheet

1. If  $x = 3$ , what is  $2y(6 - 5x)$  in terms of  $y$ ?

a)  $12y - 30$

b)  $12y$

c)  $12y - 10$

d)  $-18y$

**Answer: (d)**

Replace  $x$  with 3 in the equation:

$$x = 3, 2y(6 - 5 \times 3) = 2y \times (-9) = -18y$$

2. If  $f(x) = (x^2 + 35) / (x^2 - 10)$ , what is the value of  $f(5)$ ?

a) 0

b) 3

c) 4

d) 7

**Answer: (c)**

Plug the number 5 into the function:

$$f(5) = (5^2 + 35) / (5^2 - 10) = 60 / 15 = 4$$

3. If  $a = |1 / (x + 2)|$  and  $b = 1/y$ , what is the value of  $a + b$  when  $x = -3$  and  $y = -3$ ?

a)  $1/6$

b)  $1/4$

c)  $2/3$

d)  $1/2$

**Answer: (c)**

Substitute values:

$$a + b = |1 / (-3 + 2)| + 1 / (-3) = 1 - 1/3 = 2/3$$

4. If  $x = 5$  and  $y = -4$ , then  $x^2 + xy + y^2 = ?$

a) 4

b)  $-12$

c) 0

d) 21

**Answer: (d)**

Plug in  $x = 5$  and  $y = -4$ :

$$(5)^2 + (5)(-4) + (-4)^2 = 25 - 20 + 16 = 21$$

**5. If  $x + y = 8$ ,  $y = z - 3$ , and  $z = 1$ , then what is the value of  $x$ ?**

a) 10

b) 3

c) -8

d) -6

**Answer: (a)**

If  $z = 1$ , then  $y = 1 - 3 = -2$ .

$x + (-2) = 8 \rightarrow x = 10$

**6. If  $a - 2b = 12$ ,  $b - c = 5$ , and  $c = -1$ , what is the value of  $a$ ?**

a) 6

b) 12

c) 16

d) 20

**Answer: (d)**

If  $c = -1$ , then  $b - (-1) = 5 \rightarrow b + 1 = 5 \rightarrow b = 4$ .

$a - 2(4) = 12 \rightarrow a - 8 = 12 \rightarrow a = 20$