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Evaluating Algebraic Expressions Worksheets Grade 8

1) Evaluate the following expressions:

a) $p + 2p$ for $p = 1$

b) $2w + 3$ for $w = 3$

c) $23z + \frac{2}{7}$ for $z = 5$

2) Find the value of the following expressions:

a) $\frac{9x + 3}{3} + 4$ for $x = 6$

b) $\frac{5m + 3}{4} + 7$ for $m = 3$

c) $\frac{p + 28}{9} + \frac{2}{9}$ for $p = 6$

3) Evaluate the given expressions:

a) $\frac{2 + 12x}{3x} + 1$ for $x = 6$

b) $\frac{23x + 1}{4 + 5x} + 4$ for $x = 7$

c) $\frac{13 + 3x}{7x + 3} + \frac{3}{4}$ for $x = 2$

4) Evaluate:

a) pqr for $p = 2, q = 4, r = 6$

b) $abc(a + b + c)$ for $a = 5, b = 10, c = 15$

5) Simplify the given expressions:

a) $4x^2 + 3x + 3$ for $x = 2$

b) $7m^4 + 3$ for $m = 3$

c) $2p^3 + 3p^2 + 2$ for $p = 5$

6) Evaluate the given expressions:

a) $2x + 3y$ for $x = 2, y = 3$

b) $3p + 7q + 4$ for $p = 1, q = 2$

c) $6s + 7t$ for $s = 9, t = 7$

7) Evaluate the following polynomials:

a) $2x^2 + 3x + 3y^3 + 2$ for $x = 1, y = 2$

b) $4m^4 + 7n^4$ for $m = 2, n = 4$

8) Evaluate the following:

a) $\frac{3x^3 + 4}{5x}$ for $x = 3$

b) $\frac{3u^3 + 2u + 4}{5u + 3}$ for $u = 2$

9) Simplify the following algebraic expressions:

a) $(12y)^2 + 2$ for $y = 3$

b) $(4z)^2 + (7k)^3$ for $z = 2, k = 4$

10) Evaluate the following expressions:

a) $2xy + 3x^2y + 5xy^3$ for $x = 3, y = 2$

b) $p^2q + 3pq + p^2q^2$ for $p = 2, q = 3$

11) Find the value of the following expressions:

a) $0.2x + 0.3xy + 0.5y$ for $x = 1, y = 3$

b) $2x + 3xy + 4y^2$ for $x = 0.2, y = 0.7$

12) Simplify the expression:

a) $pqr(3pq + p + 5q) + 4rq$ for $p = 2, q = 3, r = 4$

b) $9a(4ac + 7c + bc) + ab^2c$ for $a = 3, b = 4, c = 7$

13) Given that $p = 10$ and $q = 12$, find the value of the following expression:

$$(p + q)^2 + (p - q)^2 + pq$$

14) Find the value of this expression $\sqrt{x(x + y) - y(x - y)}$ where $x = 2$ and $y = 4$.

15) Jacob sells a small notebook for \$3 and a large notebook for \$5. If he sold 15 small notebooks and 5 large notebooks. Then how much money did he earn?



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- Barbara Cabrera

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**ANSWERS**

1(a) 3	1(b) 9	1(c) $\frac{807}{7}$	2(a) 23
2(b) $\frac{23}{2}$	2(c) 4	3(a) $\frac{46}{9}$	3(b) $\frac{108}{13}$
3(c) $\frac{127}{68}$	4(a) 48	4(b) 22500	5(a) 25
5(b) 570	6(a) 13	6(b) 21	6(c) 103
7(a) 31	7(b) 1856	8(a) $\frac{19}{3}$	8(b) $\frac{32}{13}$
9(a) 1298	9(b) 22016	10(a) 186	10(b) 66
11(a) 2.6	11(b) 2.78	12(a) 888	12(b) 4638
13) 608	14) $2\sqrt{5}$	15) \$70	

FUN FACT

- An easy trick to remember the order of PEMDAS is "Please Excuse My Dear Aunt Sally".
- Many mnemonics following order of operations are used along with PEMDAS worldwide, like BODMAS, BEDMAS, and BIDMAS.

