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Evaluating Algebraic Expressions Worksheets Grade 8

1) Evaluate the following expressions:

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

b) $3z + 5$ for $z = 4$

c) $32y + \frac{3}{13}$ for $y = 1$

2) Find the value of the following expressions:

a) $\frac{7u + 2}{5} + 5$ for $u = 10$

b) $\frac{5y + 8}{7} + 2$ for $y = 5$

c) $\frac{p + 23}{4} + \frac{5}{11}$ for $p = 3$

3) Evaluate the given expressions:

a) $\frac{21 + 13x}{32x} + 1$ for $x = 6$

b) $\frac{21x + 7}{8 + 3x} + 5$ for $x = 7$

c) $\frac{14 + 13x}{17x + 13} + \frac{2}{3}$ for $x = 2$

4) Evaluate:

a) $(pqr)^2$ for $p = 3, q = 4, r = 6$

b) $(a - b + c)(a + b + c)$ for $a = 3, b = 10, c = 12$

5) Simplify the given expressions:

a) $7x^2 + 7x + 7$ for $x = 2$

b) $13m^4 + 10$ for $m = 3$

c) $9p^3 + 4p^2 + 2p$ for $p = 5$

6) Evaluate the given expressions:

a) $14x + 13y$ for $x = 2, y = 3$

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

c) $16s + 12t$ for $s = 9, t = 7$

7) Evaluate the following polynomials:

a) $12x^2 + 13x + 13y^3 + 12$ for $x = 1, y = 2$

b) $14m^4 + 17n^4$ for $m = 2, n = 4$

8) Evaluate the following:

a) $\frac{3x^3 + 3x + 4}{25x}$ for $x = 3$

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

9) Simplify the following algebraic expressions:

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

b) $(4z)^2 + (7k)^3 + 1$ for $z = 2, k = 4$

10) Evaluate the following expressions:

a) $5xy + 4x^2y + 2xy^3$ for $x = 3, y = 2$

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

11) Find the value of the following expressions:

a) $0.2x^2 + 0.3xy + 0.5y^2$ for $x = 1, y = 3$

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

12) Simplify the expression:

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

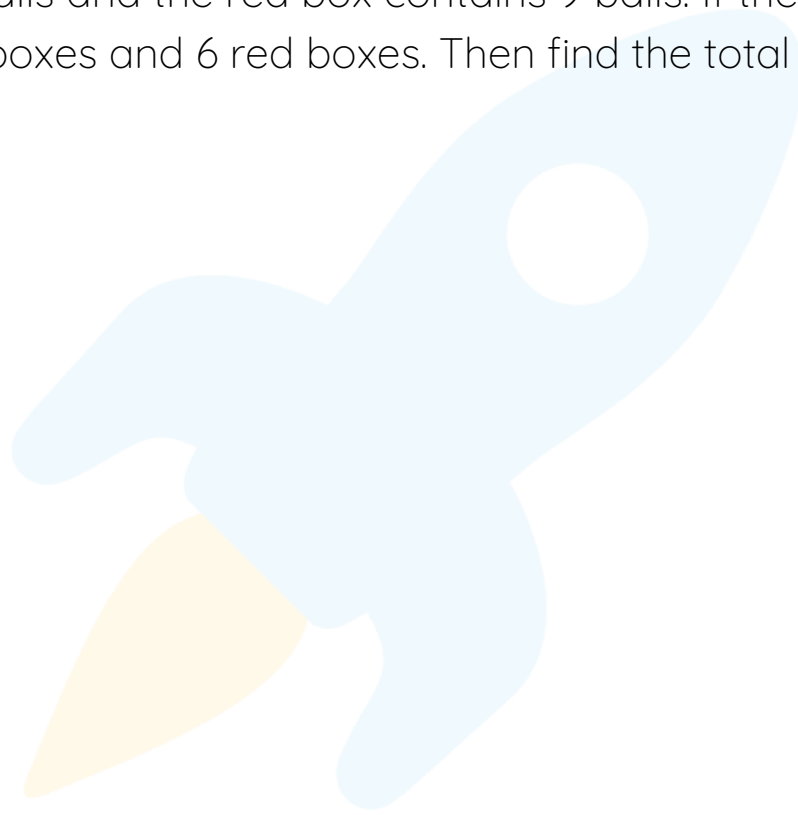
b) $a(ac + c + bc) + ab^2c$ for $a = 3, b = 4, c = 7$

13) Given that $x = 3$ and $y = 4$, find the value of the following expression:

$$(x + 2y)^2 + (2x - y)^2 + xy$$

14) Find the value of this expression $\sqrt{p(2p + 3q) - q(3p - 4q)}$ where $p = 2$ and $q = 1$.

15) There are two types of boxes containing balls. Blue box contains 7 balls and the red box contains 9 balls. If there are in total 3 blue boxes and 6 red boxes. Then find the total number of balls?



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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.

