

Alg 1 1.2

Evaluate numerical expressions using the order of operations.

Evaluate algebraic expressions using order of operations

PEMDAS

GEMA

G e m A

Key Concept	Order of Operations
Step 1 Evaluate expressions inside grouping symbols.	G
Step 2 Evaluate all powers.	e
Step 3 Do all multiplications and/or divisions from left to right.	m
Step 4 Do all additions and/or subtractions from left to right.	A

Gema

$$\frac{ac^2 - 8b}{ab} = \frac{4 \cdot 10^2 - 8 \cdot 5}{4 \cdot 5} = \frac{(400 - 40)}{(4 \cdot 5)}$$
$$= \frac{360}{20} =$$

Evaluate each expression if $g = 4, h = 6, j = 8,$ and $k = 12.$

10. $hk - gj$

$$\begin{aligned} &6 \cdot 12 - 4 \cdot 8 \\ &72 - 32 \\ &40 \end{aligned}$$

11. $2k + gh^2 - j$

$$\begin{aligned} &2 \cdot 12 + 4 \cdot 6^2 - 8 \\ &24 + 144 - 8 \\ &160 \end{aligned}$$

12. $\frac{2g(h-j)}{gh-j}$

$$\frac{(2 \cdot 4(6-4))}{(4 \cdot 6 - 8)}$$

$$\frac{2 \cdot 4 \cdot 2}{24 - 8} \quad \frac{16}{16} = 1$$

34

Whiteboards:

Evaluate each expression if $x = 2$, $y = 3$, $z = 4$, $a = \frac{4}{5}$, and $b = \frac{3}{5}$.

1. $x + 7$

2. $3x - 5$

3. $x + y^2$

4. $x^2 + y + z^2$
 $8 + 3 + 16$

5. $6a + 8b$
 $6 \cdot \frac{4}{5} + 8 \cdot \frac{3}{5} = \frac{48}{5} = 9.6$

6. $23 - (a + b)$

$23 - (\frac{4}{5} + \frac{3}{5}) = 23 - \frac{7}{5} = 22\frac{3}{5}$

$23 - a + b$

$23 - \frac{4}{5} + \frac{3}{5}$

$22\frac{4}{5}$

7. $\frac{y^2}{x^2}$

$\frac{9}{4}$

8. $2xyz + 5$

$2 \cdot 2 \cdot 3 \cdot 4 + 5$

9. $x(2y + 3z)$

$2(2 \cdot 3 + 3 \cdot 4)$

$2(6 + 12)$

$2 \cdot 18$
 36

$$120$$

$$3 \cdot 2 \cdot 3 - 4$$

$$\frac{4}{5} \cdot \frac{4}{5} + \frac{2}{1} \cdot \frac{3}{5}$$

Evaluate each expression if $x = 2$, $y = 3$, $z = 4$, $a = \frac{4}{5}$, and $b = \frac{3}{5}$.

$$\frac{16}{25} + \frac{6}{5} = 1 \frac{21}{25}$$

$$10. (10x)^2 + 100a$$

$$11. \frac{3xy - 4}{7x}$$

$$12. a^2 + 2b$$

$$13. \frac{(z^2 - y^2)}{x^2}$$

$$14. 6xz + 5xy$$

$$15. \frac{(z - y)^2}{x}$$

$$4 - 3 \frac{1}{2}$$

$$13.75$$

$$78$$

$$-0.5$$

Evaluate each expression if $x = 2$, $y = 3$, $z = 4$, $a = \frac{4}{5}$, and $b = \frac{3}{5}$.

16. $\frac{25ab + y}{xz}$

17. $\frac{5a^2b}{y}$

18. $(z \div x)^2 + ax$
 $\frac{4}{2}$
 $4 \div 2$

