

Evaluating Expressions – 1

You are already familiar with expressions like $3x + 5$, $2x - 3x$ or $-6ab$. Sometimes it is desirable to have a numerical value for these expressions. This can only be done when the unknowns are given specific numerical values. The solution is then found by substituting the specific values for the letters and working out the operations. When doing problems, be sure to follow the rules for Order of Operations. Study the following examples.

1) Find the value for $3x + 5$ if $x = 2$

Solution: 1) Replace x with 2 $3(2) + 5 =$
2) Work out the operations $6 + 5 = 11$

2) Find the value for $2x - 3x$ if $x = 3$

Solution: 1) Replace the x 's with 3 $2(3) - 3(3) =$
2) Work out the operations $6 - 9 = -3$

3) Find the value for $-6ab$ if $a = 2$ and $b = -1$

Solution: 1) Replace the values $-6(2)(-1) =$
2) Work out the operations $-12(-1) = 12$

Now try these problems. You may check your answers below. If you have difficulty, be sure to seek help before doing the problems on the back of this sheet.

For all problems: **a = 2** **b = 3** **c = -2** **d = -1**

Find the value of:

1) $3a^2$ _____ 2) $-5b + c$ _____

3) $2c^2$ _____ 4) $\frac{d}{2b}$ _____

5) $\frac{6b - 4}{5a}$ _____ 6) $3d^2 + ab$ _____

1) 12 2) -17 3) 8 4) $-\frac{1}{6}$ 5) $1\frac{2}{5}$ 6) 9

For problems 7 – 14: **x = -1** **y = 2** **z = 3**

7) $4x^2$ _____

8) $-5xy$ _____

9) $-2z + y^2$ _____

10) $-xy^2$ _____

11) $3z + xy^2$ _____

12) $-y^2$ _____

13) $-z + (-y)^2$ _____

14) $6(x^2)$ _____

For problems 15 – 22: **m = -3** **n = 4** **p = 6** **q = 0**

15) $\frac{m}{p}$ _____

16) $m^2 + n$ _____

17) $\frac{n+4}{q}$ _____

18) $-p + 2n^2$ _____

19) $\frac{q}{m+n}$ _____

20) $mnpq$ _____

21) $q^2 + (m)(n)(p)$ _____

22) $-n - (-m)$ _____

For problems 23 – 30 : **a = 3** **b = $\frac{1}{2}$** **c = 5** **d = -2**

23) $b + \frac{1}{a}$ _____

24) $-2c + 5d$ _____

25) $16b^2 + d$ _____

26) $-2ab + c$ _____

27) $\frac{ac+6}{14b}$ _____

28) $-d + a$ _____

29) $\frac{c^2+d}{b}$ _____

30) $dc - ab$ _____

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|-------|--------|--------------------|---------------|---------|-------------------|-------|----------------------|
| 7) 4 | 10) 4 | 13) 1 | 16) 13 | 19) 0 | 22) -7 | 25) 2 | 28) 5 |
| 8) 10 | 11) 5 | 14) 6 | 17) undefined | 20) 0 | 23) $\frac{5}{6}$ | 26) 2 | 29) 46 |
| 9) -2 | 12) -4 | 15) $-\frac{1}{2}$ | 18) 26 | 21) -72 | 24) -20 | 27) 3 | 30) $-11\frac{1}{2}$ |