

Please have your homework on your desk. Calculator? No

TSW simplify using the order of operations to evaluate algebraic expressions.

Get the QRQ off of the stool and complete it

Get out your signed outline slip

QRQ1 Unit 1(Quick Review Questions):

$$7 + 3 = 10 \quad -3 \ominus 7 = -10 \quad 7 - 3 = 4$$

$$3 - 7 = -4 \quad -3 \oplus 7 = 4 \quad 7 \ominus 3 = 4$$

$$-3 + 7 = 4 \quad 7 \oplus 3 = 10 \quad 3 \oplus 7 = 10$$

$$-7 \oplus 3 = -4 \quad -7 + 3 = -4 \quad 3 + 7 = 10$$

$$-7 \ominus 3 = -10 \quad 3 \ominus 7 = -4$$

Absolute Value is the distance a number is from zero on the number line.

Ex 1 Simplify

a.) $|9| = 9$ b.) $|-9| = 9$

c.) $|-9| = -9$ d.) $|-9| = -9$

e.) $|0| = 0$

Base^{Exponent} The exponent is the number of times the base is multiplied. to itself

Ex 2 Simplify

a.) $2^3 = 2 \cdot 2 \cdot 2 = 8$ b.) $5^2 = 5 \cdot 5 = 25$

c.) $3^4 = 3 \cdot 3 \cdot 3 \cdot 3 = 81$ d.) $2^5 = 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 = 32$

Ex 3 Evaluate each Square Root.

a.) $\sqrt{4} = \pm 2$

b.) $\sqrt{9} = \pm 3$

c.) $\sqrt{16} = \pm 4$

d.) $\sqrt{25} = \pm 5$

e.) $\sqrt{36} = \pm 6$





Ex 4 Evaluate each Cube Root

a.) $\sqrt[3]{8} = 2$

b.) $\sqrt[3]{27} = 3$

c.) $\sqrt[3]{64} = 4$

Order of Operations:

- P - Parenthesis (or Grouping symbols)
- E - Exponents (or powers)
- M  Multiply or Divide in order of appearance from left to right
- D  appearance from left to right
- A  Add or Subtract in order of appearance from left to right
- S  appearance from left to right

Ex 5 Simplify each using order of operations.

a.) $4 + 10 - 3$

$$\begin{array}{c} \sqrt{4+10} \\ 14-3 \\ \sqrt{\quad} \\ 11 \end{array}$$

b.) $7 \cdot 6 \div 2$

$$\begin{array}{c} \sqrt{7 \cdot 6} \\ 42 \div 2 \\ \sqrt{\quad} \\ 21 \end{array}$$

c.) $2 \cdot 4 + 16 \div 4$

$$\begin{array}{c} \sqrt{2 \cdot 4} + 16 \div 4 \\ 8 + 16 \div 4 \\ \sqrt{\quad} \\ 8 + 4 \\ \sqrt{\quad} \\ 12 \end{array}$$

d.) $8 - 18 \div 9 + 2^2$

$$\begin{array}{c} \sqrt{2+2} \\ 8-2+4 \\ 6+4=10 \end{array}$$

$$\begin{array}{l} 8-18 \div 9 + 2^2 \\ 8-18 \div 9 + 4 \\ 8-2+4 \\ 6+4 \\ 10 \end{array}$$

e.) $15 \div 3 \cdot 5 - 4^2$

$$\begin{array}{c} 15 \div 3 \cdot 5 - 16 \\ 5 \cdot 5 - 16 \\ 25 - 16 \\ 9 \end{array}$$

f.) $2[5 + (30 \div 6)^2]$

$$\begin{array}{c} 2[5 + (5)^2] \\ 2[5 + 25] \\ 2(30) \\ 60 \end{array}$$

g.) $2^4 + 3[(33/11 + 1) \div 2]$

$$\begin{array}{c} 2^4 + 3[(3+1) \div 2] \\ 2^4 + 3(4 \div 2) \\ 2^4 + 3(2) \\ 16 + 6 \rightarrow 22 \end{array}$$

h.) $\frac{|-6| + 4^2}{3^2 \cdot 4} = \frac{6+16}{9 \cdot 4} = \frac{22}{36} = \frac{11}{18}$

i.) $\frac{|-32 + 20|}{19 - 4^2 + 1} = \frac{|-12|}{19-16+1} = \frac{12}{4} = 3$

j.) $\sqrt{16} + [5 - (10 - 8)^2]^6$

$$\begin{array}{c} \sqrt{16} + [5 - (2)^2]^6 \\ \sqrt{16} + (5 - 4)^6 \\ \sqrt{16} + (1)^6 \\ \sqrt{16} + 1 \\ 4 + 1 \\ 5 \end{array}$$

Ex 6 Evaluate each expression with the given values.

a.) $-a(b - c)$ when $a = -3$, $b = 7$, and $c = -4$

$$-(-3)(7 - (-4))$$

$$3(7 + 4)$$

$$3(11)$$

$$33$$

b.) $-m^2 - n$ when $m = -1$ and $n = -5$

$$-(-1)^2 - (-5)$$

$$-(1) + 5$$

$$-1 + 5$$

$$4$$

$$\begin{array}{c} (-1)^2 \\ (-1)(-1) \\ (-1)(-1) \\ 1 \\ \begin{array}{c} -12 \\ 71 \end{array} \end{array}$$

c.) $-\sqrt{x^2} + \sqrt[3]{y} - z$ when $x = -4$, $y = 8$, and $z = -2$

$$-\sqrt{(-4)^2} + \sqrt[3]{(8)} - (-2)$$

$$-\sqrt{16} + 2 + 2$$

$$-4 + 2 + 2$$

d.) $3|4x-1|-x$ when $x = -3$

$$3|4(-3)-1|-(-3)$$

$$3|-12-1|+3$$

$$3|-13|+3$$

$$3(13)+3$$

$$39+3$$

$$42$$

Work on problems
52-54

HW 46-51
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36
23-24

Assignment:

Complete Handout on Order of Operations.

