SUMMER HW#1 Submit to schoology or Email to ggilchrist@marisths.org by Wed., August 21st

Show your work   Box Your Answers   Calculators Allowed   Simplify All Fractions

Evaluate (find the numerical answer by following the order of operations)

1) $18 - 6 + 60 \div 3 \cdot 2^2$

2) $-x^3 - x^2 - x - 4$ if $x = -4$

3) $-2x^2 + 6x - 3$ if $x = -6$

4) $\frac{2}{3} + \frac{1}{2} - 3\frac{1}{4}$ (give solution as a simplified fraction)

5) $-\frac{6}{5} \div 2\frac{2}{3}$ (give solution as a simplified fraction)

6) $3 - \frac{11}{3}$ (give solution as a simplified fraction)

Simplify the following expressions (use the order of operations and the distributive property to eliminate fractions and combine all like terms).

7) $3x - 2(x + 4)$

8) $6x^2 - 12x + 4x^2 - (3x - 1)$

9) $2(x + 3)^2 + 4x - 3$ [note: $(x + 3)^2 \neq x^2 + 9$]

10) $(6x - 2)(3x + 4)$

<u>Solve</u> (find the value of x to make the initial equation a true statement). **Check your solutions (this is required)**

11) $3x - 6 = 12$

12) $\frac{2}{3}x - 4 = 2$

13) $\frac{2x-4}{3} = 2$

14) $3x - 2(x + 4) = 6x - 9$

15) $\frac{3}{4} + \frac{2}{3}x = \frac{1}{2} - \frac{x}{5}$ (do you remember how to clear fractions?)

16) $\frac{3}{5} = \frac{x}{7}$ (hint: this is a proportion)

17) $\frac{x+3}{x} = \frac{2}{5}$

18) $\frac{4}{5}x - 7 = \frac{3}{4}x + 10$

19) $\frac{x}{4} + 3 = 2 + \frac{x}{3}$

<u>Solve and graph the following inequalities.</u> Remember! When you multiply or divide both sides of an inequality by a *negative* number, the inequality switches direction (the arrow flips). Check your solutions.

20) $x + 3 < 2x - 5$

21) $4 - (2x + 5) > 3x + 1$

22) $\dfrac{2}{3}x \le -12 \ or \ x - 5 > 9$

23) $-33 \le -7x - 12 < -26$

24) $-4x + 5 < 10x - 23$ and $-2x + 11 > 22$

25) $x + 1 \le -3$ or $-4n < -8$

<u>Evaluate the absolute value expressions.</u> (Find a single numerical result)

26) $\left| 6 - 2(4) \right|$

27) $6 + 2\left| -4 - 2a^2 \right|$ if a = -10

<u>Solve the absolute value equations.</u> (Remember there's potentially 0, 1 or 2 solutions).

28) $\left| x + 7 \right| = 10$

29) $10 - 3\left| x - 5 \right| = 12$