



Required Math Summer Review Homework
Algebra 2 Honors

Please complete the problems below and bring them with you the first day of class.

If you need more practice or information about these concepts, please visit:

<http://williston.com/mathsummerpractice>

Algebra 2 Honors

Summer Review Preparation

Show all work.

1. Evaluate without a calculator:

$$-6 - (-12 + 4) \cdot 3 \div 2 + 16 - 6 \cdot (2 - 4)^2$$

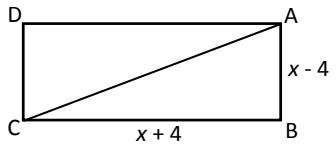
2. Evaluate without a calculator:

$$6 \left(1\frac{1}{2} \div 2\frac{2}{3} \right) + \left(\frac{3}{10} \left(\frac{2}{3} - \frac{3}{2} \right) \right)$$

3. Solve for x: $(2x - 1)2 + 5x = 3(x + 2)$

4. Solve:
$$\begin{cases} 3x - 2y = 10 \\ x + y = 0 \end{cases}$$

5. Find a simplified formula for the area of rectangle ABCD whose sides have length $x + 4$ and $x - 4$.



6. If $x = 7$, how long is the diagonal AC in rectangle ABCD above? Give your answer as a simplified root, not a decimal.

7. Factor each of the following completely.

a) $x^3 + 3x^2 - 4x - 12$

b) $4a^2b^3 - 12a^3b^4$

8. Solve each of the following exactly by factoring.

a) $x^2 - 7x - 90 = 8$

b) $2x^5 - 8x^3 = 0$

9. Find an equation of a line through the points (2, 3) and (5, -4). Leave numbers as fractions rather than decimals.

10. Find an equation of a line parallel to $3x - 2y = 5$ that goes through the point (4, 5).

11. Is 3.142 or π^2 closer to 9.86?

12. Find all values of n for which $25 < n^2 < 256$ (don't forget negative values!)
13. A wire 2 meters long is cut into two parts and one part is twice as long as the other. The longer piece is bent into the shape of a square and the other part is bent into the shape of a circle. Find the total area of the square and the total area of the circle.
14. We all know that the area of a triangle is half its base times its height. Use that idea and the Pythagorean Theorem to find a formula for the area of an equilateral triangle in terms of the length of its side s . Show all your steps- do not simply state the formula.
15. If triangle ABC is similar to triangle DEF and $AB = 5$, $BC = 6$, and $DE = 7$, find EF?

16. Simplify completely. Leave no negative exponents.: $\frac{-5(x^{-3}y^2)^2}{10y^{-2}x^7}$

17. Use scientific notation to simplify without a calculator: $\frac{(4,000,000,000)(0.0000006)}{(0.000012)(2,000,000)}$

18. Solve the inequality and graph the solution set on a number line:

$$2x + 4 \leq 3x - 7$$

19. Ashley has \$120,000 to invest and decides to put some in a CD (Certificate of Deposit) that earns 4% interest per year and the rest in a low-risk stock that earns 7%. How much should she invest in each if she wants to earn \$7800 interest in the first year?

20. Solve the following equation.

$$5|x + 3| - 4 = 21$$