

Dear Parent and Student,

This summer packet is meant for students to practice the skills needed to be successful in Honors Geometry.

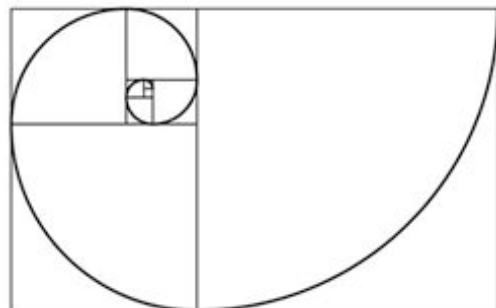
-Students are expected to attempt all the problems and attempt them without a calculator.

-There will be a quiz given in class during the 2nd week of September that will reflect the problems and skills presented in this summer packet. **Calculators will not be permitted on the quiz.**

-Detailed solutions and explanations to the summer packet will be posted on the high school/middle school websites on **August 1st**. Students are expected to check their answers and use this summer packet as a study guide for the quiz in September.

Enjoy the summer!

-Clearview Regional School District Mathematics Department



MULTIPLYING POLYNOMIALS

$$1] (x^3 + 3)(x - 7)$$

$$2] (x - 4)(x^2 + 3x - 5)$$

$$3] (5x - 6)(-x + \frac{1}{2})$$

$$4] (\sqrt{2} + x)(\sqrt{8} - x)$$

FACTOR EACH OF THE EXPRESSIONS

$$5] y^2 - 12y + 20$$

$$6] x^3 + 3x^2 + 2x$$

$$7] z^2 - z - 6$$

$$8] 4ax^2 + 16ax + 16a$$

$$9] x^2 - 16$$

$$10] k^2 - 64w^2$$

RATIONALIZE EACH RADICAL EXPRESSION

$$11] \frac{3\sqrt{3}}{\sqrt{2}}$$

$$12] \frac{1}{\sqrt{5}}$$

$$13] \frac{12}{3\sqrt{2}}$$

$$14] \frac{xy}{\sqrt{x}}$$

SOLVE EACH SYSTEM OF EQUATIONS USING SUBSTITUTION.

$$15] \begin{cases} 2x + y = 4 \\ 3x + y = 1 \end{cases}$$

$$16] \begin{cases} y = 3x - 27 \\ y = \frac{1}{2}x - 7 \end{cases}$$

SOLVE EACH SYSTEM OF EQUATIONS USING ELIMINATION

$$17] \begin{cases} 3k + 5g = -12 \\ 2k - 3g = -8 \end{cases}$$

$$18] \begin{cases} 2k - g = 8 \\ 6k - 3g = -9 \end{cases}$$

SIMPLIFY EACH RADICAL EXPRESSION

$$19] \sqrt{124}$$

$$20] \sqrt{215}$$

$$21] \sqrt{20x^2}$$

$$22] \sqrt{12} \cdot \sqrt{48}$$

$$23] \sqrt{32} + \sqrt{54} - \sqrt{98}$$

EVALUATE EACH OF THE EXPRESSIONS WITHOUT THE USE OF A CALCULATOR

24] $45 - [3(5 - 3)]$

25] $(9^2 + 4 \cdot 9 \div 4 - 6) \div 3$

26] What does $2x^2 + 3x - 4$ equal when $x = -3$?

27] $-21 - (-0.8)$

28] $-0.8 - (-1.1)$

29] $\frac{15}{16} - \frac{7}{20}$

30] $13 - (-2)$

31] $(1\frac{1}{5})(4\frac{1}{2})$

32] $(7.3)(-12.1)$

33] $-21.07 \div (-4.3)$

34] $(5\frac{1}{3}) \div (3\frac{1}{5})$

35] $\frac{3}{10} + \frac{1}{4}$

36] $\frac{10}{33} \cdot \frac{9}{50}$

37] 0.35×0.3

SOLVE EACH LINEAR EQUATION BELOW FOR 'X'

38] $3(2x - 5) - 1 = -2(x + 4)$

39] $\frac{4x + 2}{3} = 5x - 1$

40] $\frac{t + x - p}{m} = y$

41] $2x - 12y = 10$

42] $\frac{3}{2}x - 3 = \frac{3}{4}$

EVALUATE EACH EXPRESSION WITHOUT A CALCULATOR. LEAVE ALL FINAL ANSWERS IN *SIMPLEST* FORM.

43] $\frac{2}{3} + \frac{3}{4} + \frac{5}{6}$

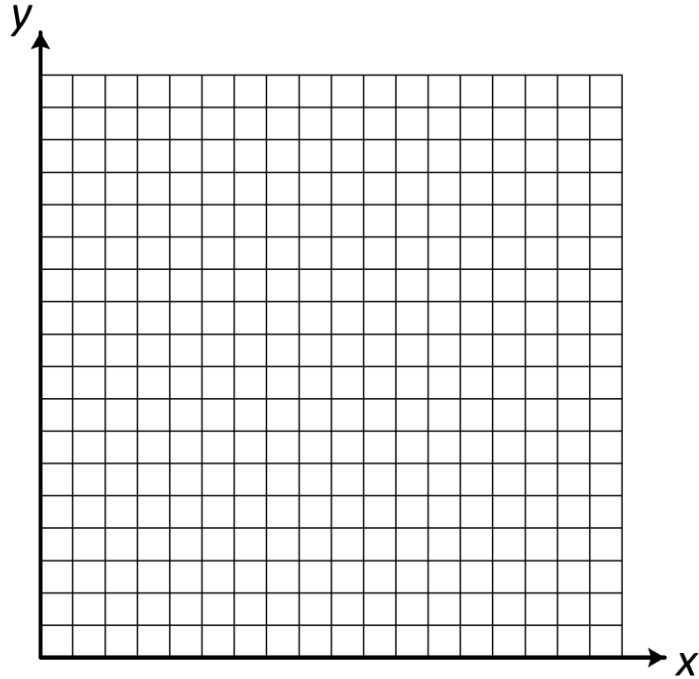
44] $\frac{2x}{3} + \frac{3x}{8}$

45] $\left(\frac{4}{3} \times 9\right) \div \left(\frac{3}{4} \times \frac{8}{9}\right)$

46] $\left(\frac{mt}{p}\right) \left(\frac{pt}{m}\right)$

USE THE DISTANCE AND MIDPOINT FORMULAS TO ANSWER THE FOLLOWING QUESTIONS

**A rectangle has vertices located at A(2,1) B(0,1) C(0,16) and D(2,16)
Graph the rectangle on the grid provided.**



47] What is the horizontal width of the rectangle from A to B?

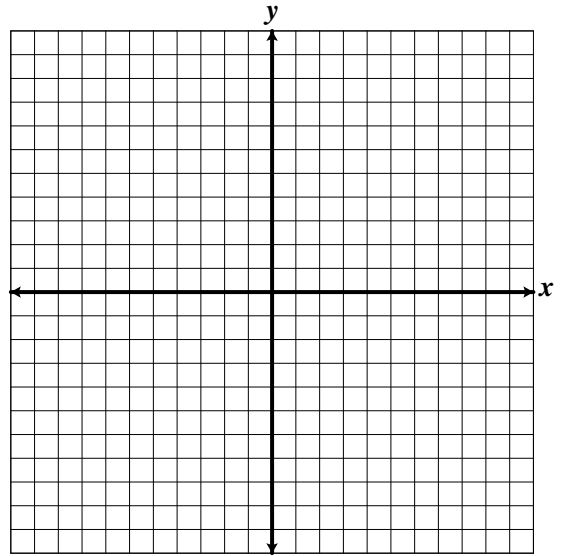
48] What is the length of a diagonal from A to C?

49] What are the coordinates of the point midway between A and C?

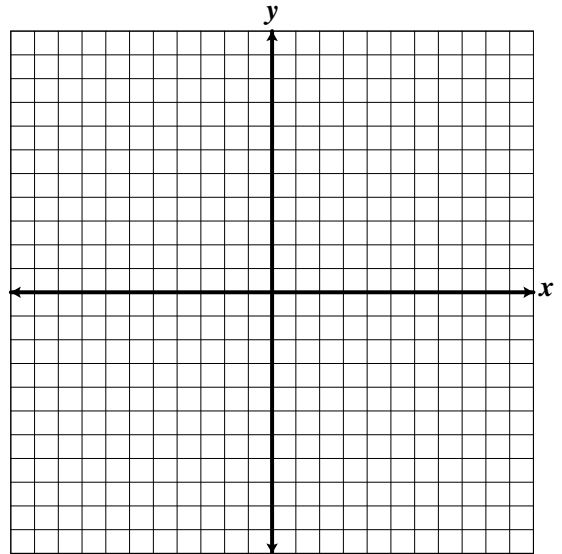
50] What is the slope of a line perpendicular to diagonal \overline{AC} ?

GRAPH EACH LINEAR EQUATION ON THE COORDINATE PLANES PROVIDED.

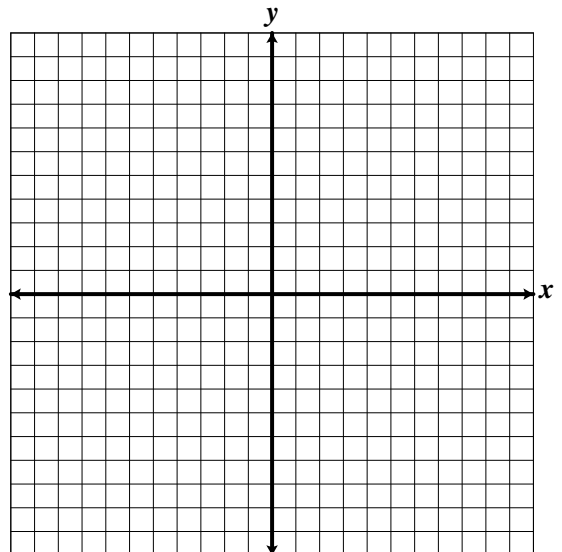
51] $2x + 5y = 10$



52] $\frac{x}{4} - \frac{y}{3} = 2$



53] $4y = 16 + 2x$



WRITE THE EQUATION OF THE LINE FROM THE GIVEN INFORMATION.

54] Write an equation in slope-intercept form of the line passing through (0,1) and is perpendicular to the line $2x + 4 = y$.

55] Write an equation in slope-intercept form of the line passing through (-9,5) and is perpendicular to the line $y = -3x + 2$.

56] Write an equation in slope-intercept form of the line passing through (4,6) and is parallel to the line $y = \frac{2}{3}x + \frac{10}{3}$.

57] Write an equation in slope-intercept form of the line that passes through (2,5) and has slope = -3.

FOR #58-60 DETERMINE IF THE PAIR OF LINES ARE PARALLEL, PERPENDICULAR, OR NEITHER.

$$58] \begin{aligned} y &= 2x + 5 \\ y &= -2x + 4 \end{aligned}$$

$$59] \begin{aligned} 2y + 3x &= 5 \\ 3y &= 2x - 7 \end{aligned}$$

$$60] \begin{aligned} x &= 3y + 2 \\ y &= \frac{1}{3}x - 3 \end{aligned}$$

FOR EACH PROBLEM BELOW, THE SLOPE OF A LINE IS GIVEN. DETERMINE THE SLOPE OF THE PERPENDICULAR LINE.

$$61] m = 3/5$$

$$62] m = -6$$

$$63] m = -1/11$$

$$64] m = -\sqrt{2}$$

SOME HINTS: These are just a few hints, please utilize online resources for help if necessary.

A) MULTIPLYING POLYNOMIALS BY THE FOIL METHOD:

$$\begin{array}{c}
 \begin{array}{ccc}
 & F & L \\
 \text{---} & \text{---} & \text{---} \\
 (5x - 3) & (4x + 1) & \\
 \text{---} & \text{---} & \text{---} \\
 & O & \\
 \text{---} & \text{---} & \text{---}
 \end{array} \\
 \\
 20x^2 + 5x - 12x - 3 \\
 \begin{array}{cccc}
 F & & O & I & L \\
 & & & & \\
 20x^2 & - & 7x & - & 3
 \end{array}
 \end{array}$$

B) RATIONALIZE THE DENOMINATOR

- 1) Multiply the "top" and bottom by the square root in the denominator.
- 2) Simplify the numerator if necessary. The denominator will become the square root of a perfect square.
- 3) Reduce the fraction if necessary.

$$\begin{array}{c}
 \frac{5}{\sqrt{10}} \\
 \swarrow \quad \searrow \\
 \text{2} \quad \text{3} \\
 \frac{5}{\sqrt{10}} = \frac{5}{\sqrt{10}} \cdot \frac{\sqrt{10}}{\sqrt{10}} = \frac{5\sqrt{10}}{\sqrt{100}} = \frac{5\sqrt{10}}{10} = \frac{\sqrt{10}}{2} \\
 \underbrace{\hspace{1.5cm}}_{\text{1}} \quad \nearrow \text{Reduce: } \frac{5}{10} = \frac{1}{2}
 \end{array}$$

C) SIMPLIFYING RADICALS

This is just 7

$$\sqrt{98} = \sqrt{7 \cdot 7 \cdot 2} = 7\sqrt{2}$$

$$\begin{array}{c}
 \swarrow \quad \searrow \\
 49 \quad 2 \\
 \swarrow \quad \searrow \\
 7 \quad 7
 \end{array}$$