

Methacton High School
Algebra 2/Trigonometry – Summer Math Packet 2020
Welcome 2020/21 A2/T Students and Parents!

This packet was designed for you to practice the mathematical skills that all A2/T students are expected to have upon entering the course. Take the time to complete all the problems in this packet. Make sure you understand how to do the problems. These prerequisite skills will make your time in A2/T much easier and will greatly increase the likelihood of a successful school year.

If you are unsure of how to complete some of the problems, please click on the links provided below to access online videos for extra help. You may also search the topics listed below at www.Khanacademy.org for additional resources.

The A2/T Summer Packet will be due the first week of school. This packet will not be graded. However, you will have a test on the material from the packet during the beginning weeks of school.

Geometry Review:

1. [Pythagorean Theorem](#)
2. [Distance Formula](#)
3. [Midpoint of a segment](#)

Algebraic Properties:

1. [Order of Operations](#)
2. [Evaluating Algebraic Expressions](#)
3. [Commutative Property](#)
4. [Associative Property](#)
5. [Identity Property](#)
6. [Number Sets](#)

Solving Equations and Inequalities

1. [Solving Linear Equations and Inequalities](#)
2. [Solving Absolute Value Equations](#)
3. [Solving Absolute Value Inequalities](#)
4. [Solving Compound Inequalities](#)

Functions:

1. [Domain and Range](#)
2. [Vertical Line Test](#)
3. [Evaluating Functions](#)

Linear Equations:

1. [Writing Linear Equations](#)
2. [Writing Equations of Parallel Lines](#)
3. [Writing Equations of Perpendicular Lines](#)

Graphing:

1. [Graphing Linear Equations](#)
2. [Graphing Linear Inequalities](#)
3. [Graphing Absolute Value Functions](#)

Algebra 2 / Trigonometry
Chapter 1

Name _____

Geometry Review:

- 1.) Find the length of the third side of a right triangle if the lengths of the two legs are 6 inches and 2 inches. 1.) _____
- 2.) Find the distance of the line segment with endpoints (3, -2) and (-2, 5). 2.) _____
- 3.) Find the midpoint of the segment with endpoints (3, -2) and (-2, 5). 3.) _____

Find the value of each expression. (Lesson 1-1)

- 4.) $5 - 24 \div 12 \cdot 2 + 6$ 5.) $\frac{6^2 + 4 \cdot 2^4}{28 + 9 \cdot 8}$ 4.) _____
- 6.) $7(8-3) - 3^3$ 7.) $[7 - (8 - 6)^2] - 1$ 5.) _____
- 6.) _____

For #8-9, Evaluate if a = 2, b = -3, c = -1, d = 2

- 8.) $\frac{3ab^2 - d^3}{a}$ 9.) $\frac{5ab^2 - c^3}{a^2}$ 8.) _____
- 9.) _____
- 10.) Simplify: $\frac{4}{5}(3v - 2w) - \frac{1}{5}(7v - 2w)$ 10.) _____

Name the property illustrated in each equation. (Lesson 1-2)

- 11.) $5(x-6) = 5x - 30$ 12.) $5 + (x+3) = 5 + (3+x)$ 11.) _____
- 12.) _____
- 13.) $2x(4+3y) = (4+3y)2x$ 14.) $8d \cdot 1 = 8d$ 13.) _____
- 14.) _____

Name ALL the sets that each number belong to (Lesson 1-2)

(Use R = reals, I = irrational, W = wholes, Q = rationals, Z = integers, and N = naturals)

15.) -6

16.) $\sqrt{13}$

17.) $\frac{3}{4}$

Solve each open sentence. (Lessons 1-4 through 1-6)

18.) $4(y+1)+7=y+17$

19.) $\frac{3x+3}{4}=\frac{5}{2}$

18.) _____

19.) _____

20.) $2(2x-3)=8-3(3x+1)$

21.) $|3x+6|+3=45$

20.) _____

21.) _____

22.) $2|y+4|=14$

23.) $|8+x|=2x-3$

22.) _____

23.) _____

24.) $5(x-1)-4x \geq 3(3-x)$

25.) $\frac{2x+3}{5} < 0.03$

24.) _____

25.) _____

26.) Write an algebraic expression to represent the following verbal expression:
The product of the cube of a number and seven (Lesson 1-4)

26.) _____

27.) Write an equation, but do not solve: (Lesson 1-4)
Seventeen less than the product of four and a number squared is negative one

27.) _____

28.) The sum of three consecutive odd integers is 195.
Write an equation to find the integers, then solve. (Lesson 1-4)

28.) _____

29.) The perimeter of an isosceles triangle is 62 cm. Find the lengths of the sides if the length of the base is 16 cm.(Lesson 1-4)

29.)_____

30.) State the mean, median, and mode for the following data: {26, 18, 11, 25, 26, 19, 35, 29, 25, 16, 26} (Lesson 1-3)

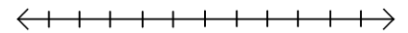
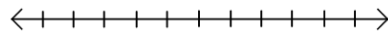
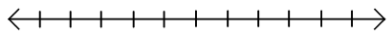
30.)_____

Solve each inequality and graph each set of solutions. (Lesson 1-6)

31.) $-16 < 4y + 2 \leq 30$

32.) $2x + 7 < -13$ or $6 - 2x < 10$

33.) $3x + 2 > -7$ and $2x + 8 < 18$



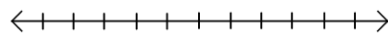
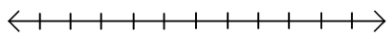
Solve each inequality and graph each set of solutions. (Lesson 1-6 and 1-7)

34.) $|x+5| < 8$

35.) $|5x-4| \geq 11$

34.)_____

35.)_____

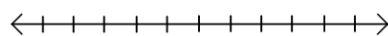
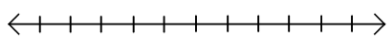


36.) $6x-4 > 9x+2$

37.) $|7x-8| < -5$

36.)_____

37.)_____



Algebra 2 / Trigonometry
Chapter 2

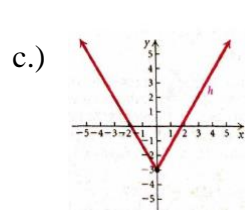
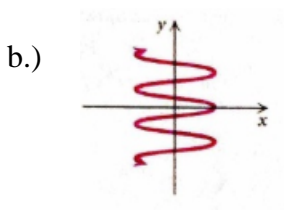
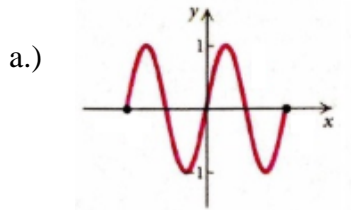
Name _____

State the domain and range of each relation. Then state if it is a function. (Lesson 2-1)

1.) $\{(3,5), (4,2), (-2,6), (4,7)\}$

2.) $\{(1,5), (-4,3), (-2,2), (3,5)\}$

3.) Use the vertical line test to determine if the relation is a function, answer yes or no. (Lesson 2-1)



4.) Given $f(x) = 5x + 2x^2 + 1$, find $f(-3)$. (Lesson 2-1)

Find the slope, x-intercept, and y-intercept of each line whose equation is given below. (Lesson 2-2)

5.) $4x - 3y = 7$

6.) $5x + y = 10$

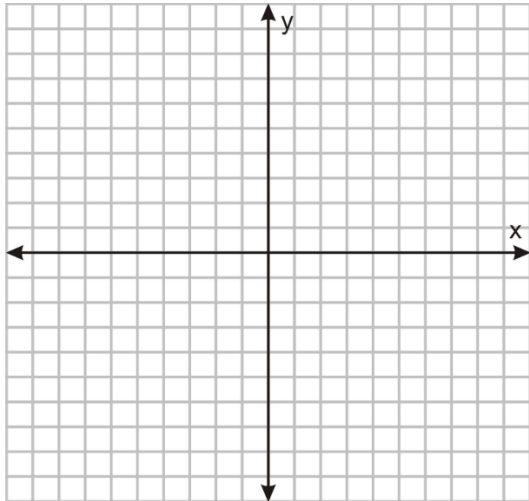
7.) Find the slope-intercept form of the equation of the line passing through the point $(-4, 7)$ with a slope of -2 . (Lesson 2-4)

8.) Find the standard form of the equation of the line whose x-intercept is -2 and whose y-intercept is -3 . (Lesson 2-4)

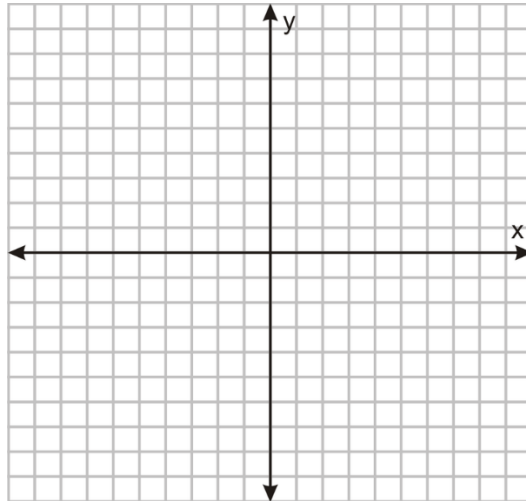
9.) Find the standard form of the equation of the line that passes through $(1, -2)$ and is perpendicular to the line $y = -\frac{1}{4}x + 3$. (Lesson 2-3)

Graph each equation or inequality on the attached graph paper. (Lessons 2-1, 2-3, 2-6, and 2-7)

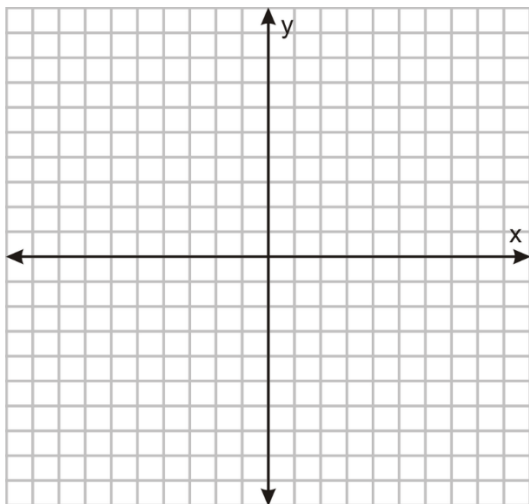
10.) $y = \frac{2}{3}x - 2$



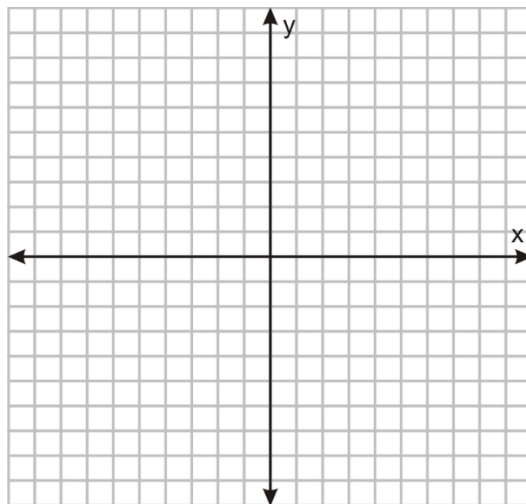
11.) $-x + 2y = 4$



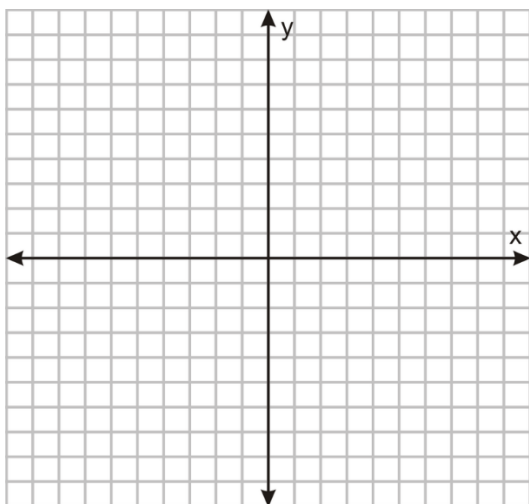
13.) $y = |x - 3| + 4$



14.) $y = 7$



15.) $5x - 2y \geq 6$



16.) $y < |x + 5|$

