Colorado Rocky Mountain School

NAME:_____ ENTERING GRADE:_____

MATH READINESS ASSESSMENT

This assessment is intended to determine the proper course level and help ensure that you are placed in the appropriate class. If, upon review of this assessment, we see any gaps in learning, we will call and discuss a plan for remediation.

Before you begin:

1. We recommend that an adult is present to proctor this assessment.
2. Ensure you have set aside plenty of time to complete the exam in a distraction-free environment.
3. **Remove any math text, notes, calculators or computers from the test space. This work should be done entirely on your own without support materials or help from others.**

Instructions:

1. Print out this assessment. When you are finished, please scan & upload your test to SchoolAdmin.
2. Please complete this assessment on your own—in one sitting—and without the use of a calculator or any other resources.
3. **Write all fractional answers reduced and as improper fractions rather than mixed numbers.**
4. Do your best to answer as much as you can. If you do not know, or have forgotten a concept, skip it. This lets us know what skills you need to learn or review.
5. Time yourself and record the amount of time you spent in the space provided.
6. **Show all the calculations and procedures that lead to your answers.**

NAME:_____

1) $\frac{2}{5} + \frac{1}{3} =$

2) $\frac{5}{6} - 4 =$

3) $\frac{3}{2} \cdot 8 =$

4) $\frac{7}{2} \cdot \frac{4}{3} =$

5) $12 \cdot \frac{1}{6} =$

6) $-6 + 2 =$

7) $-8 - 5 =$

8) $10 - 13 =$

9) $7 + (-4) =$

10) $-3 - (-4) =$

11) $4 + 2(1 + 5) =$

12) $1 + 7(3 - 8) =$

13) $4 - (4 + 6) =$

14) $4 - (9 - 11) =$

15) $\frac{10+4}{10} =$

16) $\frac{5-1}{5} =$

17) $2 + 3^2 =$

18) $12 - 64 \div 4 - 2(-2)^3 =$

19) $5[(1 + 3)^2 - 7(1 + 2)] =$

20) Evaluate if x = 2 and y = 6: $\frac{2}{3}(y + 6x)$

21) Evaluate if x = 3 and y = -4: $-x(\frac{2}{3} + \frac{3y}{6})$

Please record the amount of time you took to complete this Pre-Algebra section: _____

2

NAME:_____

Solve the following equations for *x*:

22) $x + 1 = 7$

23) $4x = 3$

24) $\frac{x}{5} = 2$

25) $\frac{8x}{3} = 4$

26) $10x - 5 = 2$

27) $7 - 5x = 1$

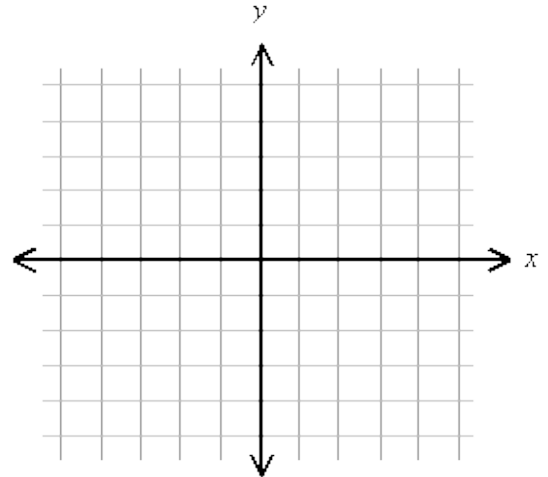28) $\frac{3}{x} = 2$

29) $\frac{4}{3x-1} = -5$

30) $6 - 4x = x$

31) Write an equation of a line with a slope of

-4 and a y-intercept of 2.

32) Write an equation of a line with a slope of 7

that passes through the point $(-1,3)$.

33) Write an equation of a line that passes

through the points $(3,2)$ and $(-2,5)$.

34) On the axes provided graph the line $y = -2x + 1$.

35) Find the equation of the line that passes

through $(4, 3)$ and is perpendicular

to $y = -\frac{1}{2}x + 5$.

36) Solve the system of equation: $6x - 3y = 7$

$x + 8y = 18$

Please record the amount of time you took to

complete this Algebra section: _____

NAME:_____

Geometry Section:
- Please show all work on a separate sheet of paper in an organized and neat fashion.
- If it is helpful for you to draw diagrams, feel free to do so, but know that it is not required.
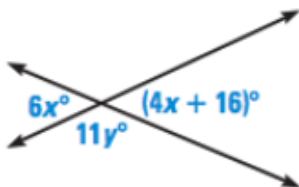- Provide complete solutions with all steps for algebraic work.
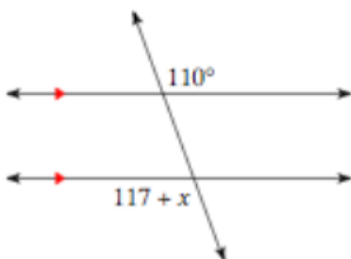
1. For the following figure, solve for the value of x.

$105°$ $(2x - 11)°$
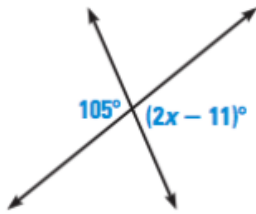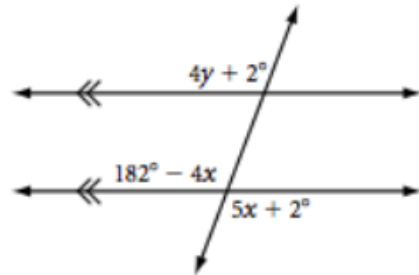
2. For the following figure, solve for the value of x.

$(6x + 19)°$ $x°$
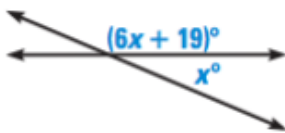
3. For the following figures, solve for the values of x and y.

$6x°$ $(4x + 16)°$ $11y°$

4. For the following figure, solve for the value of x.

$110°$ $117 + x$

5. For the following figure, solve for the values of x and y.

$4y + 2°$ $182° - 4x$ $5x + 2°$

6. Given the coordinates of two endpoints of a line segment, A(3,11) and B(-7,-5), find the midpoint of the segment.

7. The perimeter of ΔTUV is 95 cm. Is $\Delta TUV \cong \Delta WXV$? Show algebraic work and give a brief written explanation why or why not.
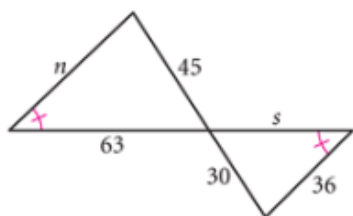
$2x - 10$ T U $x + 25$ x V 40 X W
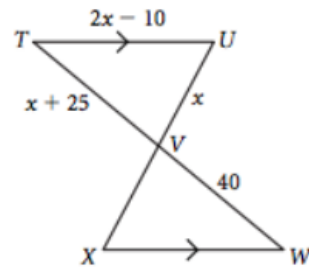
8. The measure of one internal angle in a regular polygon is 108°. How many sides does it have?

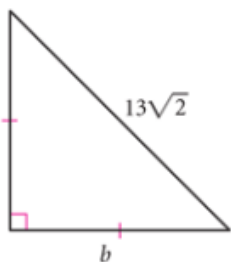9. A regular polygon has a total interior angle measure of 1080°. What is the measure of one exterior angle?

4

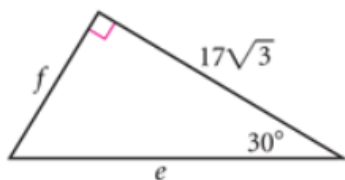10. Are the following pair of triangles similar? If so, describe how you know and then find the values of s and n.

11. In the following triangle, solve for the value of a.

12. In the following triangle, solve for the value of b.
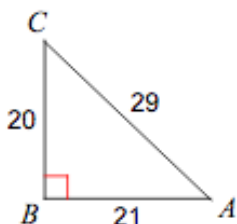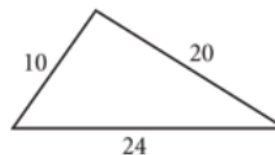
13. In the following triangle, solve for the value of e.

14. For the following three questions consider the below triangle and find the value of each trigonometric ratio.
   a. Tan A
    b. Cos C

15. Is the following triangle a right triangle? Demonstrate why or why not.

16. The point A(-3,4) represents the center of a circle and the point B(5,-6) lies on the circles circumference.
    a. What is the distance between points A and B? Round answer to nearest hundredth.
    b. Write an equation of a tangent line that touches the circle at point B.

17. For the following circle, find the measure of arc a, and the missing angles b and c.
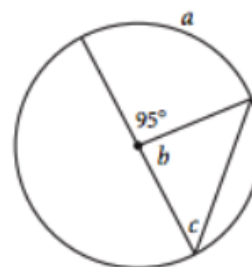
18. For the following circle, find the arc length indicated by the dark line around the circle's circumference. Give exact answer.
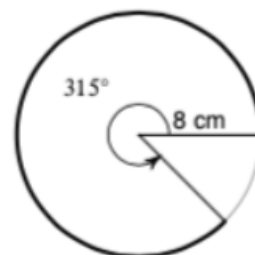
19. Convert 218° into radians.

20. What is the volume of a cylinder whose height is 12cm and has a radius of 8cm?

Please record the amount of time you took to complete this Geometry section: _____

NAME:_____

<u>Algebra 2 Section</u>:

Evaluate the following expression if x = - 3

1) $5 + 2(5 - x)$

2) $x^2 - x + 4$

Solve for x

3) $\frac{2}{3} - 5x = \frac{1}{2}$

4) $5 - 3(x - 1) = 4$

5) $2x^2 - 5 = 50$

Write an equation of the line that:

6) Passes through (2,-3) and (-3,4)

Find the point of intersection of these lines:
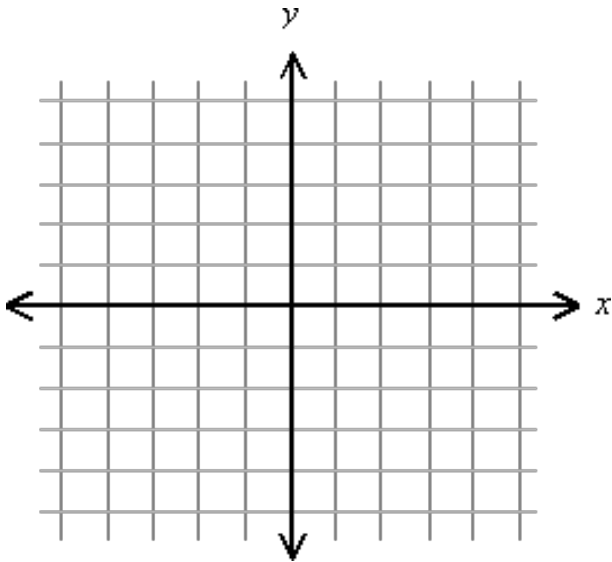
7) $9x - y = 2 + x$ and $5x = 3y + 1$

8) Write equations for two lines that are parallel to each other.

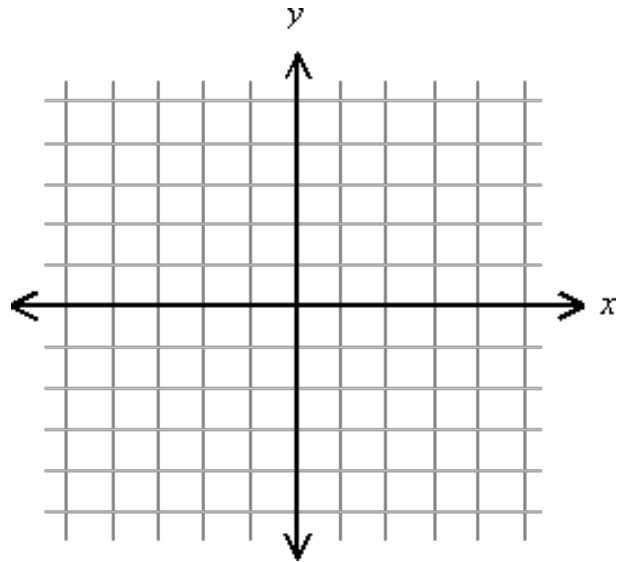9) Write equations for two lines that are perpendicular to each other.
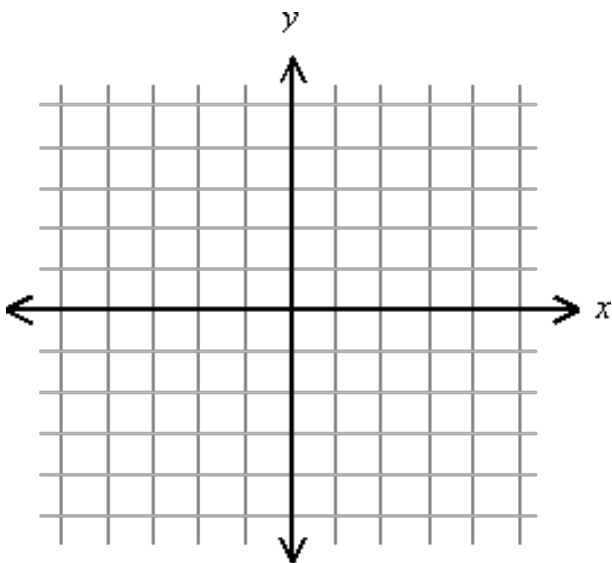
Graph the following functions on the given axes.

10) $x - 2y = -8$

y

x

12) $y = x^2 + 3$

y

x

11) $y = -(x - 2) + 3$

y

x

13) $y = (x + 1)^2$

y

x
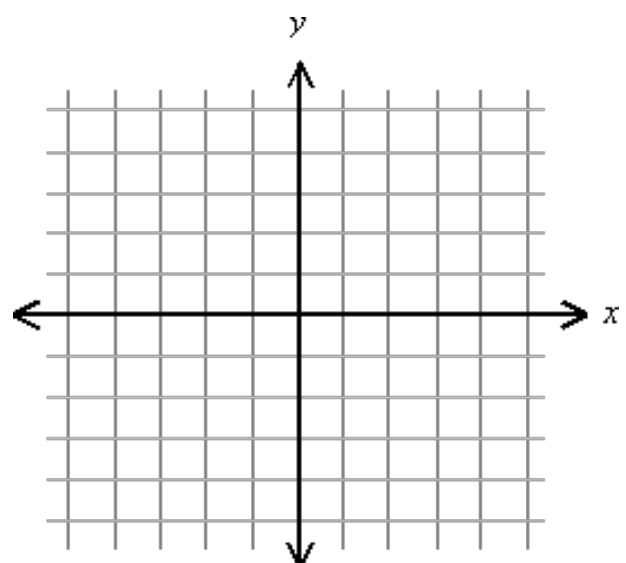
14)   **Factor the expression** $x^2 + 7x + 6$

15)   **Expand the following expression** $(x + 3)(2x - 1)$

16)   **Add a constant term to complete the square on the following expression.**

$x^2 + 12x +$ _____

17)   **Given the function f(x) = - x + 3 find f(x)=17**

18)   **Given the function** $f(x) = x^2 + 3$**find the value for x in which f(-2)**

Please record the amount of time you took to complete this Algebra 2 section: _____

NAME:_____

Simplify the following expressions

1) $\sqrt[3]{27}$

2) $\sqrt[4]{16}$

3) $3^2 \cdot 3^3$

4) $8^{\frac{1}{3}} \cdot 9^{\frac{1}{2}}$

5) $\dfrac{6^9}{6^7}$

6) $\dfrac{2^{-3} \cdot 4^3}{-4^{\frac{1}{2}}}$

7) $\dfrac{a^4 b^{12} x^{-5} d^{.25}}{x^2 b^4} \cdot \dfrac{b^4 a^{.5} d}{d^3 x}$

Graph the equations with the correct intercepts and vertex

8) $y = x^2 - 4$

9) $y = (x + 3)(x - 7)$

10) $y = x^2 + 8x + 15$

Find all real solutions to the equations

11)　　$7x - 6 = 4x + 9$

12)　　$2x^2 - 17x + 35 = (x - 5)^2$

13)　　$3x^2 + 4x - 1 = 0$

14)　　$2x^2 + 3x = 11$

15)　　$x^2 + 8x - 2 = 0$

Please record the amount of time you took to complete this Pre-Calculus section: _____

NAME:_____

Calculus Section:

1) Write an equation for the line with slope a that passes through the point (b, c).

Solve for x

2) $3 - x = cx - y$

3) $5 - x^2 = x$

4) $2^{3x} = 7$

5) $\frac{2}{3} Ln(x) = 2$

6) $8 \cdot sin(x) + 1 = -3$

Write as an expression with neither negative exponents nor compound fractions

7) $\dfrac{a^{-3}/b}{b^2}$

8) $\dfrac{a^2}{b^{-1}/a^{-2}}$

9) $\dfrac{1/b^2}{b^4/a^2}$

10) $\dfrac{a^1 b^{-3}}{a^{-3}/b^2}$

Write the values of the expression

11) $Ln(e)$

12) $Ln(\sqrt{e})$

13) $Ln\left(\frac{1}{e}\right)$

14) $Ln(1)$

15) $Ln(0)$

Give the value of the trigonometric function at each radian measure.

θ	Sin(θ)	Cos(θ)	Tan(θ)
0			
$\dfrac{\pi}{6}$			
$\dfrac{\pi}{4}$			
$\dfrac{\pi}{3}$			
$\dfrac{\pi}{2}$			
$\dfrac{2\pi}{3}$			
$\dfrac{3\pi}{4}$			
$\dfrac{5\pi}{6}$			
π			
$\dfrac{7\pi}{6}$			
$\dfrac{5\pi}{4}$			
$\dfrac{4\pi}{3}$			
$\dfrac{3\pi}{2}$			
$\dfrac{5\pi}{3}$			
$\dfrac{7\pi}{4}$			
$\dfrac{11\pi}{6}$			

Please record the amount of time you took to complete this Calculus section: _____

11