Algebra 1 Final Review 2015
** You will be able to have **_ONE_** 4x6 note card (Front and Back) on your final!**

- Prioritize your studies by focusing on targets you scored low on 1st –note your scores next to targets.
- Each target is given at least one problem in this packet
- Review problems are listed next to each target – You will need your book – always check answers!
- Answer keys will be available in the classroom and online at mahonymath.weebly.com

Targets	Score	Learning Targets	Ch 1 Problems
T 1-1		I can convert between algebraic expressions and verbal expressions.	1.1 Pg. 7 #11-30all
~~**T 1-2**~~		~~I can use dimensional analysis to convert between units.~~	~~Dimensional Analysis Worksheet~~
T 1-2		I can apply order of operations in expressions and equations.	1.2 Pg. 13 #39-54all
T 1-3		I can recognize and apply the properties of numbers to simplify algebraic expressions.	1.3 Number Properties

1. Write and algebraic expression to go with this sentence:
   "The difference between the cube of a number and three times that same number."

2. ~~Convert 34 meters per hour to millimeters per second. (1 meter = 100 cm, 1 cm = 10 mm)~~

3. Evaluate: $-9 + \dfrac{9+21}{3(4+1)} - (-3)$

4. Rewrite this using the commutative property: $3xyz =$

Targets	Score	Learning Targets	Ch 2 Problems
T 2-1		I can translate between sentences and equations.	2.1 Pg. 77 #1-20 all
T 2-2		I can solve multi-step equations.	2.2 Pg. 86 #10-15all 2.3 Pg. 94 #1-10all
T 2-3		I can solve equations with variables on both sides	2.4 Pg. 100 #1-9all, 25-31o
T 2-4		I can interpret and use a proportion to solve a problem.	2.6 Pg. 115 #15-19o, 30-36all 2.7 Pg. 122 #1-13all

1. Write a story for the following problem:
   a = cost of one adult's ticket to zoo
   $a - 4$ = cost of one children's ticket to zoo
   $2a + 4(a - 4) = 38$

Solve:

2. $\frac{3}{4}q - 7 = 8$

3. $\frac{3}{12} = \frac{2}{x+6}$

4. $75 - 9x = 5(-4 + 2x)$

5. $2(5 - 8x) + 6 = -10 - 16x$

6. At Safeway you buy a turkey for thanksgiving it is on sale for 15% off the original price. The original price of the turkey was $32. As you are checking out the cashier asks if you would like to donate 2% of your total price to the Special Olympics. Of course you donate what now is your total cost?

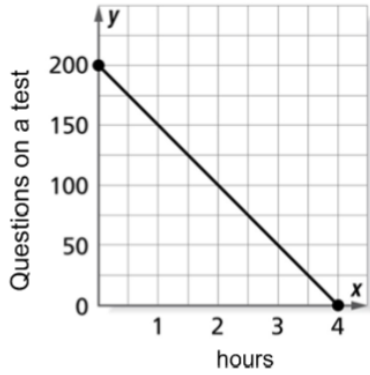| Targets	Score	Ch 3 Learning Target	Ch 3 Problems
T 3-1		I can find the x and y intercepts and explains what they mean in real world situations.	3.1 Pg. 159 #5-8, 12, 21, 22, 23-28
T 3-2		I can graph linear functions	3.1 Pg. 159 #9-11, 29-34
T 3-3		I can find the slope and the rate of change interpret it in the context of problem.	3.3 Pg. 177 # 1-13all

For # 1-4, find the slope.

1. $(243, 85), (121, -105)$

2. $(-13, 56), (-13, -7)$

3.

x	y
-16	-1
-6	-5
-1	-7

4. $4x - 5y = 15$

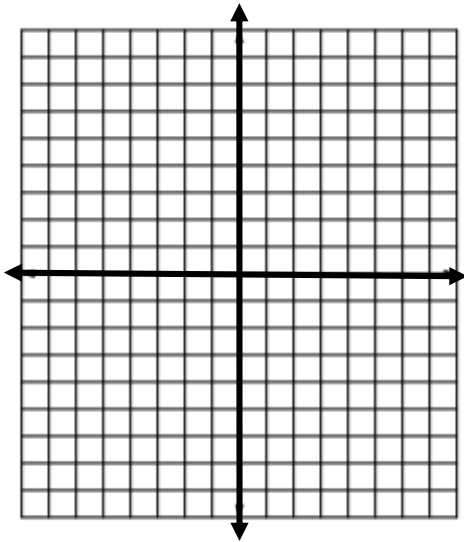5. Find the x and y intercepts and explain what they mean.
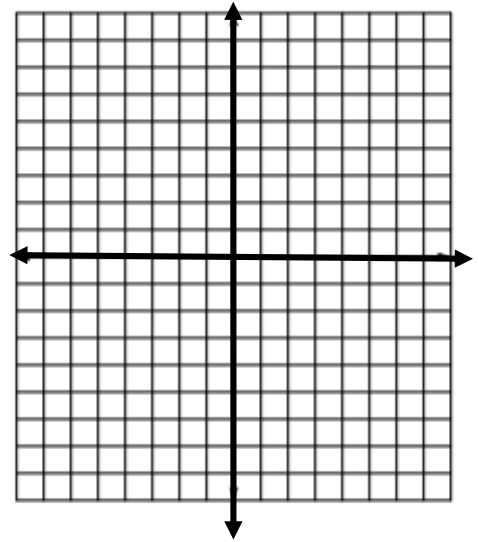

Find the x and y intercepts for the following equation.

6. $4x - y = 4$

Graph the lines using a table:

7. $y = 2x + 3$

8. $2y - 5 = 10x - 3$

Targets	Score	Ch 4 Learning Targets	Ch 4 Problems
T4-1		I can graph equations using given information	4.1 Pg. 220 #23-31o 4.3 Pg. 236 #27-33o GRAPH EACH!
T4-2		I can write linear equations in slope intercept form, point slope form and standard form.	4.2 Pg. 229 #11-21o
T4-3		I can write linear equations that are parallel or perpendicular to another line.	4.4 Pg. 243 #11-16, 23-28, 33-38

1. Write an equation in slope-intercept form that has a slope of 4 and passes through (1, 9).

2. Write an equation of the line that passes through (-1, 6) and (3, –2).
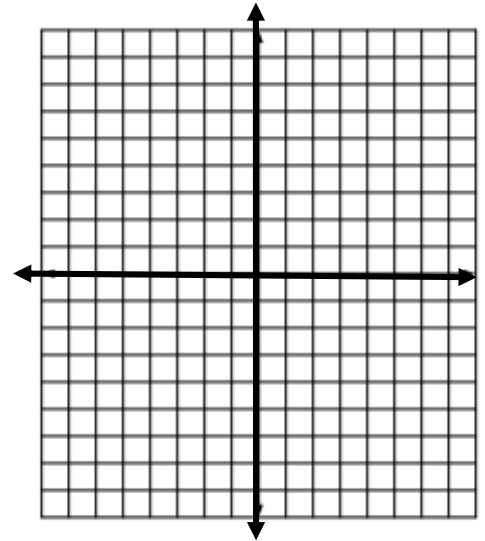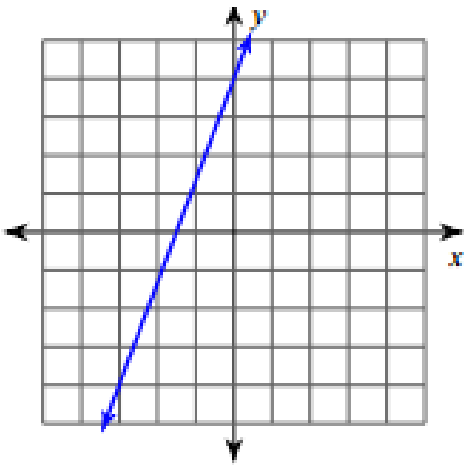
3. Slope: -10
   Y-intercept: 0

   Equation: _____

4. Slope: $\frac{5}{6}$
   Y-intercept: -8

   Equation: _____

5.
   Slope:_____
   Y-intercept:_____
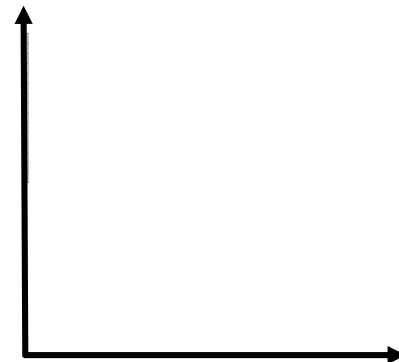
   Equation: _____

6. $y + 2 = \frac{7}{8}(x - 3)$

Below is a table relating the age of a person and the percent of their money that they have spend on entertainment.
Make a scatter plot of the data. **Label your graph**

Age	30	40	50	60	70	80
Percent Spent on Entertainment	15	13	12	8	6	4

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a. Describe the correlation and what it means.

b. Draw a line of best fit. List two points on the line.
c. Write an equation for the line of best fit.

d. Use your equation to predict the percent spent when a person is 20.

State whether the graphs of the following equations are parallel, perpendicular or neither.

1. $y = 2x$
   $y = 2x - 4$

2. $2y + 3x = 5$
   $3y - 2x = 5$

3. Write an equation perpendicular to the given line through the point:
   $(2, 5)$ *and perpendicular to* $3x + 5y = 7$

4. Write and equation parallel to the given line through the point.
   $(-6, 5)$ *and parallel to* $y = \frac{1}{3}x + 9$.

Targets	Score	Ch 6 Learning Targets	Ch 6 Retake Problems
T 6-1		I can solve systems of equations by graphing and determine the number of solutions. I can use this to solve real world situations.	6.1 pg. 339 #25, 26, 27-37o
T 6-2		I can solve systems of equations by using substitution and determine the number of solutions. I can use this to solve real world situations.	6.2 pg. 347 #8-16all Word Problem Worksheet
T 6-3		I can solve systems of equations by using elimination and determine the number of solutions. I can use this to solve real world situations	6.4 pg. 360 #13-18all Word Problem Worksheet

1. $-x + y = -3$
   $4x + 3y = 12$
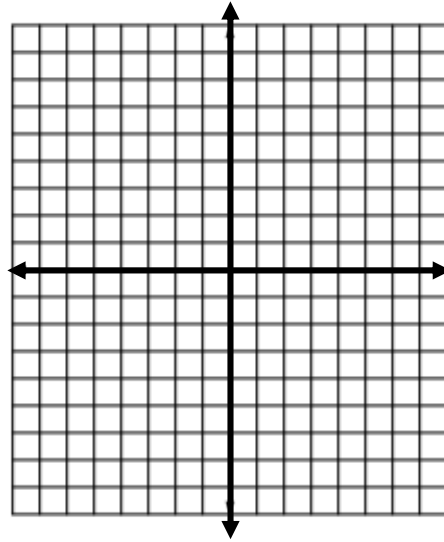
Solve using substitution.
   1. $-7x - 2y = -13$
      $x - 2y = 11$

Solve using Elimination.
   2. $-4x - 2y = 14$
      $-10x + 7y = -25$

3. Tickets to a concert are $5 for balcony seats and $10 for orchestra seating. The attendance was 600 and the total money received was $4750. How many people purchased each type of seat?

Targets	Score	Ch 7 Learning Targets	Ch 7 Problems
T 7-1		I can multiply monomials using the properties of exponents and simplify expressions.	7.1 pg. 394 #7-19o 7.4 Pg. 417 #1-4all, 7-14all
T 7-2		I can divide monomials using the properties of exponents and simplify expressions.	7.2 Pg. 402 #1-14all, skip 10,
T 7-3		I can use all properties of exponents to solve exponents.	7.2 Pg. 403 #31-41o, 47-56all
T 7-4		I can evaluate, rewrite and solve expressions involving rational exponents	7.3 Pg. 410 #1-15all

1. $(2gh^4)^3((-2g^4h)^3)^2 =$

2. $3(7d^2)^4 =$

3. $\dfrac{8a^5b^8}{40a^7b^3} =$

4. $\dfrac{-8x^{12}y^3}{10y^{10}x^6} =$

5. $\left(\dfrac{2x^{-4}}{3y^3}\right)^4 =$

6. $\left(\dfrac{7x^3y^5}{6x^{-9}y^{-3}}\right)^{-2} =$

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Ch. 8 Problems

Targets	Score	Ch 8 Learning Targets	Ch 8 Problems
T 8-1		I can write polynomials in standard form, name leading coefficient, name degree and perform addition and subtraction on polynomials.	Pg. 468 #1-18all, 52, 53
T 8-2		I can multiply polynomials using the distributive & double distributive method.	Pg. 474 #1-15o Pg. 483 #1-7o
T 8-3		I can multiply polynomials using FOIL method.	Pg. 483 #13-23o Pg. 488 #1-7o
T 8-4		I can factor polynomials using the GCF (distributive property).	8.5 Pg. 498 #15-26all
T 8-5		I can factor trinomials and binomials with a leading coefficient of one using any method.	8.6 Pg. 507 #12-19all Also complete the following problems: $x^2 - 16$ $m^2 - 256$ $c^2 - 100$
T 8-6		I can factor trinomials and binomials with a leading coefficient greater than one using any method	8.7 Pg. 513 #10-21all Also complete the following problems: $4b^2 - 25$ $\qquad$ $25g^2 - 9$ $81y^2 - 16$
T 8-7		I can use factoring and the zero product property to solve quadratic equations.	Solve by Factoring Retake Worksheet

Simplify

1. $(5a^2 + 6a + 2) - (7a^2 - 7a + 5)$

Simplify

2. $6t(2t - 3) - 5(2t^2 + 9t - 3)$

Multiply

3. $(4h - 2)(4h - 1)$

Multiply

4. $(w + 4)(w^2 + 3w - 6)$

Factor

7. $t^2 - 15t + 56$

Factor

8. $-12 - 9m + 3m^2$

Solve

9. $h^2 + 2h = 35$

Solve

10. $a^2 + 14a = -45$

Solve   Solve

11. $3h^2 + 2h - 16 = 0$ 12. $15n^2 - n = 2$

T1-2 Dimensional Analysis Retake Problems

(Unit Conversion)

<u>Conversions</u>

1 hour = 60 minutes	1 kg = 2.2 lbs	
1 mile = 5280 feet	1 lb = 0.45 kg	1000 m = 1 kilometer
1 yard = 3 feet	1 quart = 0.946 liters	1000 mm = 1 meter
1 meter = 3.28 feet	1 m/s = 2.2 miles/hour	100 cm = 1 meter
1 km = 0.62 miles	1 foot = 12 inches	10 mm = 1 centimeter
1 light second = 300,000,000	1 inch = 2.54 cm = 25.4 mm	1 minute = 60 seconds
meters		

Convert the following quantities using Dimensional Analysis and showing ALL of your work including the units. ANSWERS MUST HAVE UNITS!!

    A. 565,900 seconds into days

    B. 17 years into minutes

    C. 60 miles per hour into meters per second

    D. 130 meters per second into miles per hour

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E. 1100 feet per second into miles per hour

For 1-18, name the property used by each statement.

1. $9 \cdot 3 = 3 \cdot 9$

10. $6(300 + 10) = 6(300) + 6(10)$

2. $3 \cdot (4 \cdot 2) = (3 \cdot 4) \cdot 2$

11. $3(100 - 3) = 3(100) - 3(3)$

3. $234 \cdot 1 = 234$

12. $x + (5 + 6) = x + 11$

4. $56 \cdot 11 = 11 \cdot 56$

13. $x + 4 = x + 4$

5. $7{,}547{,}375 \cdot 0 = 0$

14. $If\ 10 + 3 = 13, then\ 13 = 10 + 3$

6. $4 \cdot 8 \cdot 3 = 4 \cdot 3 \cdot 8$

15. $357 - 10 = 357 - 10$

7. $5 + (7 + 2) = (5 + 7) + 2$

16. $If\ 42 = y, then\ y = 42$

8. $5y(3 + k) = 5y(3) + 5y(k)$

17. $x + 4 - 4 = x$

9. $235 + 0 = 235$

18. $5 \cdot \frac{1}{5} = 1$

For 19-26, rewrite the expression using the property given. DO NOT EVALUATE!

19. Commutative Property

    a.　$3 + 4 + 29 =$

    b.　$3xy + 2mk + m =$

20. Associative Property

    c.　$(x + y) + mk =$

    d.　$5x(8m \cdot 7) =$

21. Multiplicative Inverse or Identity

    e.　$4x \cdot$　$= 1$

    f.　$\frac{2}{3} \cdot$　$= 1$

22. Additive Inverse or identity

    g.　$-4x +$ ____ $= 0$

23. Symmetric Property

    h.　$x + y =$ _____

    i.　$2x + y - 4z =$ _____

24. Reflexive Property

    j.　$497 + 12{,}345 =$ _____

    k.　$7t - 9r =$ _____

25. Distributive Property

    l.　$5(x) + 5(4) =$ _____

    m.　$x(2 - y + t) =$ _____

26. Transitive Property

    a. If $10 + 2 = 12$ and $12 = 2(6)$ then $10 + 2 =$ _____

    b. If $x + 3 = y$ and $y = z + 2$, then $x + 3 =$ _____

T 8-7: Factoring (to solve) RETAKE WS

Solve each equation.

1. $(x + 3)(x - 5) = 0$

2. $4x(x - 7) = 0$

3. $2x(x - 5)(2x - 9) = 0$

4. $(x - 4)^2 = 0$

5. $20p^2 - 15p = 0$

6. $x^2 + 12 - 7x = 0$

7. $40 - 22x = -x^2$

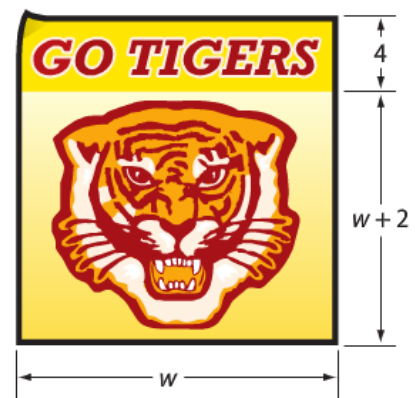**8.** $x^2 - 49 = 0$

9. $2x^2 + 13x = 15$

10. $4x^2 + 17x + 15 = 0$

11. $64x^2 - 1 = 0$

12. $9 - 54x = -81x^2$

13. GEOMETRY The area of a square is represented by $9x^2 - 42x + 49$. Find the length of each side.

14. Ling is designing a poster. The top of the poster is 4 inches long and the rest of the poster is 2 inches longer than the width. If the poster requires 616 square inches of poster board, find the width of the poster.

15. Soccer: The width of a high school soccer field is 45 yards shorter than its length. Write an expression for the area of the field. If the area of the field is 9,000 square yards, find the field dimensions.