HONORS
PRECALCULUS
PREREQUISITE SKILL REVIEW
(Summer Assignment)

- **Due within 2 days of the start of your class (S1 in August; S2 in January)**
- **All students are required to complete every problem in the packet on time**
- **Even if you double up you must complete this work on time.**
- **NO CALCULATOR is to be used for the entire packet**
- **There will be a test on the 11 topics (*No Calculator will be used for this assessment.)**
- **WORK MUST BE SHOWN FOR CREDIT**

TOPICS:

PEMDAS no calculator (Simplifying Numeric and Variable Expressions) - 8

Equations and Inequalities (including no solution and all reals) - 12

Factoring (gcf, binomial, grouping) - 18

Solving Quadratic Equations (3 methods) - 10

Fractions - 13

Rational Expressions - 10

Slope, Distance and Midpoint – 10

Graphing (No Calculator) - 10

Writing Equations of Lines (y=mx+b, point-slope form) - 8

Radicals and Exponents – 11

Exponents and Logarithms (No Calculator) - 20

*Most of these topics involve ALGEBRA I skills; the expectation is for you to have these in your working knowledge before the start of the class.

NAME:_____ Block:____

Blank copies can be found at: *http://learn.eastonsd.org/course/view.php?id=2870*

Honors Precalculus Prerequisite Work

Part 1 2016-2017: PEMDAS

Name _____ Period _____

Simplify.

1. $5 - 6(2 - 3)$

2. $5\left[(6-3)^2 + 4 \cdot 2\right]$

3. $\dfrac{6 \cdot 3 + 2}{5 - 9}$

4. $\dfrac{5(6-2)}{2(4+3)}$

5. $-15 + 4p - (8 + 11p)$

6. $3(a^2 - 4a + 2) + a(7a - 9)$

7. $(4a + 1)(3a - 2) + (a - 2)(a + 2)$

8. $(y + 8)(3y - 2) + (y - 4)^2$

Equations and Inequalities

Part 2 2016-2017

1. $6c - 11 + c = 5 - 2c - 16$

2. $8(5 - 3r) = -4(6r - 10)$

3. $7p - 2(3 - 4p) = 12p - (p + 4)$

4. $3(x + 2) - x = 2(x + 4) + 11$

5. $\frac{2}{3}(3m + 3) = \frac{1}{4}(4m + 28)$

6. $2x + 17 = \frac{3(1 - 5x)}{7}$

7. $\frac{36}{9} = \frac{a}{45}$

8. $\frac{20}{3} = \frac{5}{h}$

9. $95 < 10(14 - c) + 5c$

10. $5 - 3(10 - 7a) \geq 4(2a + 10)$

11. $\left|\frac{w}{3} - 2\right| = 3$

12. $|d + 1| + 4 = 10$

Factoring

Part 3 2016-2017

Factor completely.

1. $k^3 + 9k^2 + k$

2. $-m^2n^3 - 3m^2n^2 + m^2n$

3. $y^2 + 9y + 20$

4. $k^4 + 9k^2 + 8$

5. $m^2 + 22m + 24$

6. $z^2 - 12z + 20$

7. $4 - 5y + y^2$

8. $a^4 - 7a^2 + 6$

9. $d^2 + 9d - 36$

10. $p^2 - p - 12$

11. $4c^2 + 9c - 9$

12. $121 - a^2$

13. $9r^2 - 16$

14. $a^3 + 15a^2 - 16a$

15. $x^6 - 6x^4 + 9x^2$

16. $w^4 - 2w^2 + 1$

17. $5x - 5y + x^2 - xy$ *Use grouping

18. $pr - 3p - 8r + 24$ *Use grouping

Quadratic Equations

Part 4 2016-2017

Name _____ Period _____

1. $x^2 - 9x = 0$

2. $p^2 = -14p$

3. $m^2 - 3m - 10 = 0$

4. $8p^2 - 8p - 48 = 0$

5. $a^2 = 49$

6. $a^2 - 25 = 0$

7. $w^2 + 4w + 4 = 0$

8. $w^2 - 15 = 0$

9. $c^2 - 4c - 1 = 0$

10. $2x^2 + 12x = -11$

Fractions

Part 5 2016-2017

Name _____ Period _____

1. $\frac{1}{5} - \frac{7}{6}$

2. $-\frac{5}{6} - \frac{1}{24}$

3. $\frac{1}{3} - \frac{5}{6} + \frac{1}{2}$

4. $24 \cdot \frac{11}{8}$

5. $\frac{4}{5} \cdot \frac{7}{4}$

6. $\frac{20}{27} \cdot \frac{3}{16}$

7. $\frac{3}{8} \cdot \frac{15}{18} \cdot \frac{2}{5}$

8. $\left(\frac{4}{7}\right)\left(-\frac{1}{8}\right)\left(\frac{14}{15}\right)$

9. $-\frac{1}{3} \div \frac{1}{6}$

10. $\frac{3}{8} \div \frac{2}{3}$

11. $\dfrac{\frac{1}{2}}{\frac{2}{3}}$

12. $\dfrac{\frac{3}{4}}{\frac{9}{2}}$

13. $\dfrac{\frac{1}{2} + \frac{1}{4}}{\frac{1}{2} + \frac{1}{8}}$

Rational Expressions

Part 6 2016-2017

For what value(s) is the expression undefined?

1. $\dfrac{k-6}{2k}$

2. $\dfrac{y-3}{y^3-4y}$

Simplify.

3. $\dfrac{-5(r+7)}{-25(r+7)}$

4. $\dfrac{10y^2(a+y)}{5y^2(b+y)}$

5. $\dfrac{x^2-4}{11x-22}$

6. $\dfrac{4a}{9}+\dfrac{a}{6}$

7. $\dfrac{3w}{4}+\dfrac{w}{5}-\dfrac{w}{8}$

8. $\dfrac{6}{p+1}+\dfrac{12}{p-4}$

9. $\dfrac{2x}{2x+6}-\dfrac{x^2+9}{x^2-9}$

10. $\dfrac{3a}{a^2-a-6}-\dfrac{4}{a-3}$

Slope, Distance and Midpoint

Part 7 2016-2017

1. What is the slope of all vertical lines?

2. What is the slope between $(0, 8)$ and $(8, -2)$?

3. Find the slope of the line which contains $(-6, 6)$ and whose x-intercept is -2.

4. Find the slope of the line which contains $(\frac{2}{3}, -4)$ and passes through the origin.

5. Find the slope of the line: $x - y = 8$.

6. What is the the slope of the line $y = -1$?

7. Find the midpoint between $(3, 12)$ and $(-7, 2)$

8. What is the midpoint of $\overline{RS}$, if $R = (-4, -1)$ and $S = (4, 6)$.

9. Find the distance between $(9, -1)$ and $(-3, 4)$.

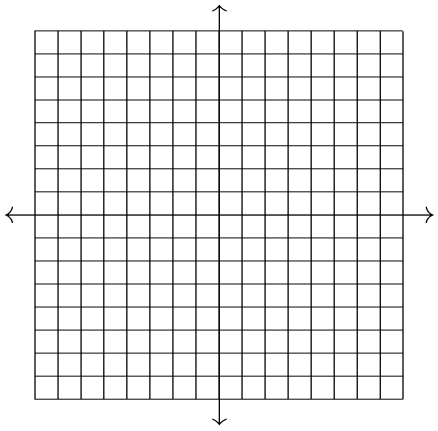
10. What is the slope and y-intercept for the line: $y = -4x + \frac{1}{2}$?

Graphing in the Coordinate Plane

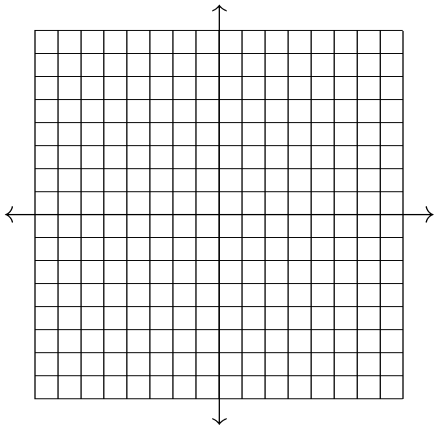
Part 8 2016-2017

Graph the line.

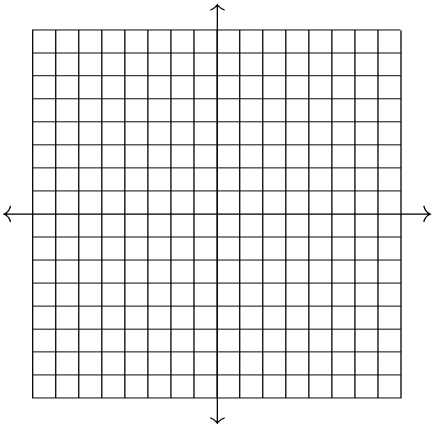
1. $y = 2x + 3$



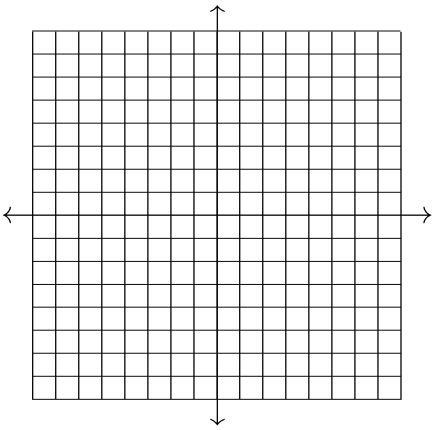
2. $y > -x + 2$



3. $6x - 2y + 14 = 0$



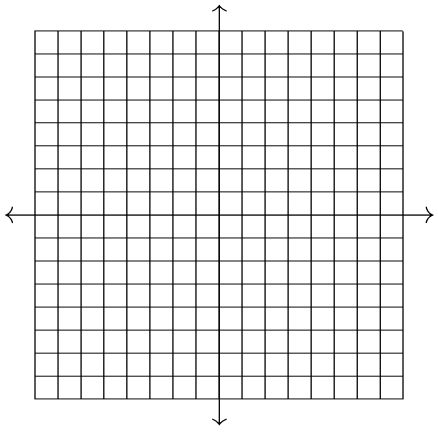
4. $x = -4$



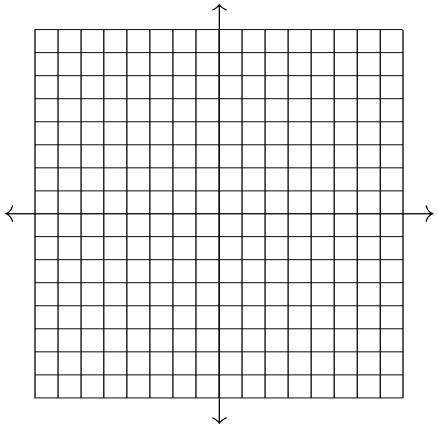
Graphing in the Coordinate Plane

Part 8 2016-2017

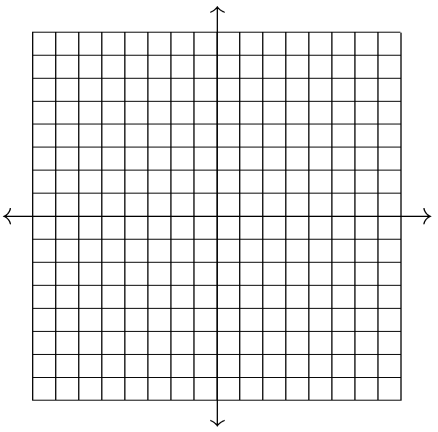
5. $y = |x - 4|$



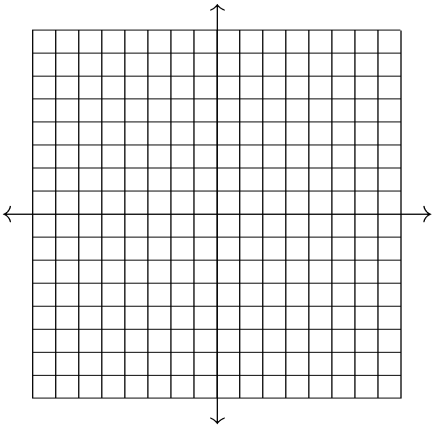
6. $y = |x - 1| - 4$



7. $y = x^2 - 1$



8. $y = (x - 3)^2 - 1$

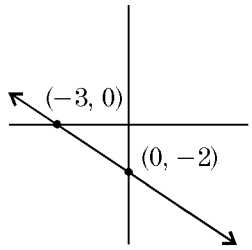


Graphing in the Coordinate Plane

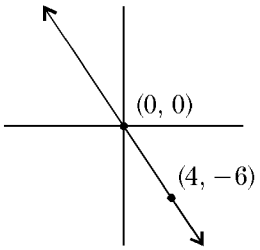
Part 8 2016-2017

Write the equation of the graph.

9.



10.



Writing Equations of Lines

Part 9 2016-2017

1. slope $= -4$, y-intercept $= 6$

2. slope $= -1$, contains $(6, -2)$

3. slope $= \frac{1}{4}$, passes through $(1, -2)$

4. passes through $(8, -2)$ and $(4, -4)$

5. passes through $(0, 9)$ and $(-4, 6)$

6. vertical, passes through $(-4, 1)$

7. contains $(-4, 10)$ and is parallel to $y = 3x - 2$

8. passes through $(6, 1)$ and is parallel to $4y - 2x - 1 = 0$

Radicals and Exponents

Part 10 2016-2017

Simplify.

1. $\sqrt{\frac{64}{121}}$

2. $-\sqrt{72}$

3. $\sqrt{200w^5z^{12}}$

4. $\sqrt[3]{40}$

5. $\sqrt{30} \cdot \sqrt{20}$

6. $(2\sqrt{7})^2$

7. $\frac{5}{\sqrt{13}}$

8. $\sqrt{\frac{2}{3}}$

Rewrite using exponents.

9. $\sqrt{7}$

10. $\sqrt[3]{4}$

11. $\sqrt[5]{14^3}$

Exponents and Logarithms

Part 11 2016-2017

1. $(-2)^6$

2. -2^6

3. $\left(\frac{3}{5}\right)^3$

4. 3^{-3}

5. 150^0

6. $g^5 \cdot h \cdot h^6 \cdot g^3$

7. $(4a^5b)^2$

8. $\dfrac{k^6}{k^5m^2}$

9. $\left(-\dfrac{3w}{4z^4}\right)^3$

10. $x^a \cdot x^b$

11. $\log_2 8$

12. $\log_3 27$

13. $\log_2 \frac{1}{2}$

14. $\log_3 \frac{1}{27}$

15. $\log_3 1$

16. $\log 100$

17. $\log 10$

18. $\log \frac{1}{10}$

19. $\ln e^2$

20. $\ln \frac{1}{e}$