Name: **Partners:** **Math Academy I**

Date: **Review 3 Version A**

[A] Circle whether each statement is true or false.

T F 1. $(8 - 2i)(8 + 2i)$ is a real number.

T F 2. $y = 6x^2 + 9x + 5$ has no x-intercepts.

T F 3. The roots of $x^2 + 2x - 8$ are $x = -2$ and $x = 4$.

T F 4. The zeros of $x^2 + 2x - 8$ are $x = -2$ and $x = 4$.

T F 5. The solutions to $x^2 + 2x - 8 = 0$ are $x = -2$ and $x = 4$.

T F 6. The x-intercepts of $y = x^2 + 2x - 8$ are (-2, 0) and (4, 0).

T F 7. The parabola $y = 2x^2 + 8x + 7$ has a minimum at $y = -1$.

T F 8. The vertex of the parabola $y = -.04(x + 13)^2 + 9$ is (13, 9).

T F 9. On the complex plane, $6 + 5i$ is represented by the point (6, -5).

T F 10. Any quadratic equation can be solved with the quadratic formula.

T F 11. $x^2 + 6y^2 - 4x - 5y + 2 = 0$ is a hyperbola with branches above and below its asymptotes.

[B] Sketch. Label the *x*-intercepts and the vertex or the center.

1. $y = x^2 + 8x - 9$

2. $\frac{(x-3)^2}{25} + \frac{y^2}{16} = 1$

[C] Simplify completely.

1. $\sqrt[3]{32ab^5c^9}$

2. $\dfrac{6}{8+\sqrt{2}}$

3. $\dfrac{1-6i}{6-2i}$

[D] Solve. Simplify answers completely. (Do not round.)

1. $3(x-2)^2 = -75$

2. $x(x-2)(x^2+6x+8) = 0$

3. $4x^2 + 4x = -5$

[E] Do the following to organize your group's reviews.

1. Make sure your name and your partners' names are at the top of your review the first day.
2. Staple the reviews in order, all facing the same way. Put the staple in the very top left corner if everyone is finished or if the review is due; otherwise put the staple in the top right corner.

Name: **Math Academy I**

Date: **Review 3 Version B**

[A] Circle whether each statement is true or false.

T F 1. $(8 - 2i)(8 + 2i)$ is a real number.

T F 2. $y = 6x^2 + 9x + 5$ has no x-intercepts.

T F 3. The roots of $x^2 + 2x - 8$ are $x = -2$ and $x = 4$.

T F 4. The zeros of $x^2 + 2x - 8$ are $x = -2$ and $x = 4$.

T F 5. The solutions to $x^2 + 2x - 8 = 0$ are $x = -2$ and $x = 4$.

T F 6. The x-intercepts of $y = x^2 + 2x - 8$ are (-2, 0) and (4, 0).

T F 7. The parabola $y = 2x^2 + 8x + 7$ has a minimum at $y = -1$.

T F 8. The vertex of the parabola $y = -.04(x + 13)^2 + 9$ is (13, 9).

T F 9. On the complex plane, $6 + 5i$ is represented by the point (6, -5).

T F 10. Any quadratic equation can be solved with the quadratic formula.

T F 11. $x^2 + 6y^2 - 4x - 5y + 2 = 0$ is a hyperbola with branches above and below its asymptotes.

[B] Sketch. Label the *x*-intercepts and the vertex or the center.

1. $y = 2x^2 + 20x - 24$

2. $\frac{(x+3)^2}{20} + \frac{y^2}{36} = 1$

[C] Simplify completely.

1. $\sqrt[3]{96ab^{36}c^{13}}$

2. $\dfrac{6}{2+\sqrt{8}}$

3. $\dfrac{3+5i}{4-6i}$

[D] Solve. Simplify answers completely. (Do not round.)

1. $-4(x-3)^2+8=44$

2. $2x^3(x+7)(x^2+2x-8)=0$

3. $4x^2+3=6x$

[E] Bonus.

1. Make up an equation, without parentheses, for each of the stated criteria.

a) $f(x)$ has three x-intercepts.

b) $g(x)$ has four different roots and two x-intercepts

Name: **Math Academy I**

Date: **Review 3 Version C**

[A] Circle whether each statement is true or false.

T F 1. $(8 - 2i)(8 + 2i)$ is a real number.

T F 2. $y = 6x^2 + 9x + 5$ has no x-intercepts.

T F 3. The roots of $x^2 + 2x - 8$ are $x = -2$ and $x = 4$.

T F 4. The zeros of $x^2 + 2x - 8$ are $x = -2$ and $x = 4$.

T F 5. The solutions to $x^2 + 2x - 8 = 0$ are $x = -2$ and $x = 4$.

T F 6. The x-intercepts of $y = x^2 + 2x - 8$ are (-2, 0) and (4, 0).

T F 7. The parabola $y = 2x^2 + 8x + 7$ has a minimum at $y = -1$.

T F 8. The vertex of the parabola $y = -.04(x + 13)^2 + 9$ is (13, 9).

T F 9. On the complex plane, $6 + 5i$ is represented by the point (6, -5).

T F 10. Any quadratic equation can be solved with the quadratic formula.

T F 11. $x^2 + 6y^2 - 4x - 5y + 2 = 0$ is a hyperbola with branches above and below its asymptotes.

[B] Sketch. Label the *x*-intercepts and the vertex or the center.

1. $y = 24x^2 - 34x - 45$

2. $\frac{(x+5)^2}{64} + \frac{y^2}{16} = 4$

[C] Simplify completely.

1. $\sqrt[3]{243ab^{27}c^{304}}$

2. $\dfrac{6}{8+\sqrt{32}}$

3. $\dfrac{8+4i}{8-4i}$

[D] Solve. Simplify answers completely. (Do not round.)

1. $-4(x-5)^2+1=49$

2. $7x^3(x+9)(3x+2)(x^2-4x-12)=0$

3. $8x=6x^2+5$

[E] Bonus.

1. Make up an equation, without parentheses, for each of the stated criteria.

a) $f(x)$ has three x-intercepts.

b) $g(x)$ has six different roots and four x-intercepts

Name: **Math Academy I**

Date: **Review 3 Version D**

[A] Circle whether each statement is true or false.

T F 1. $(8 - 2i)(8 + 2i)$ is a real number.

T F 2. $y = 6x^2 + 9x + 5$ has no x-intercepts.

T F 3. The roots of $x^2 + 2x - 8$ are $x = -2$ and $x = 4$.

T F 4. The zeros of $x^2 + 2x - 8$ are $x = -2$ and $x = 4$.

T F 5. The solutions to $x^2 + 2x - 8 = 0$ are $x = -2$ and $x = 4$.

T F 6. The x-intercepts of $y = x^2 + 2x - 8$ are (-2, 0) and (4, 0).

T F 7. The parabola $y = 2x^2 + 8x + 7$ has a minimum at $y = -1$.

T F 8. The vertex of the parabola $y = -.04(x + 13)^2 + 9$ is (13, 9).

T F 9. On the complex plane, $6 + 5i$ is represented by the point (6, -5).

T F 10. Any quadratic equation can be solved with the quadratic formula.

T F 11. $x^2 + 6y^2 - 4x - 5y + 2 = 0$ is a hyperbola with branches above and below its asymptotes.

[B] Sketch. Label the *x*-intercepts and the vertex or the center.

1. $y = 3x^2 + 8x - 9$

2. $4x^2 + y^2 + 32x + 6y = -57$

[C] Simplify completely.

1. $\sqrt[4]{3888ab^{16}c^{731}}$

2. $\dfrac{6}{8+\sqrt{72}}$

3. $\dfrac{8+6i}{2i}$

[D] Solve. Simplify answers completely. (Do not round.)

1. $-4(x-5)^2-1=49$

2. $12x^5(4x+7)(x^2+9)(2x^2+13x+15)=0$

3. $8x^2=6x^3+5x$

[E] Bonus.

1. Make up an equation, without parentheses, for each of the stated criteria.

a) $f(x)$ has three x-intercepts.

b) $g(x)$ has eight different roots and five x-intercepts