

Adv Algebra – S1 Final Exam Practice Test

Calculator

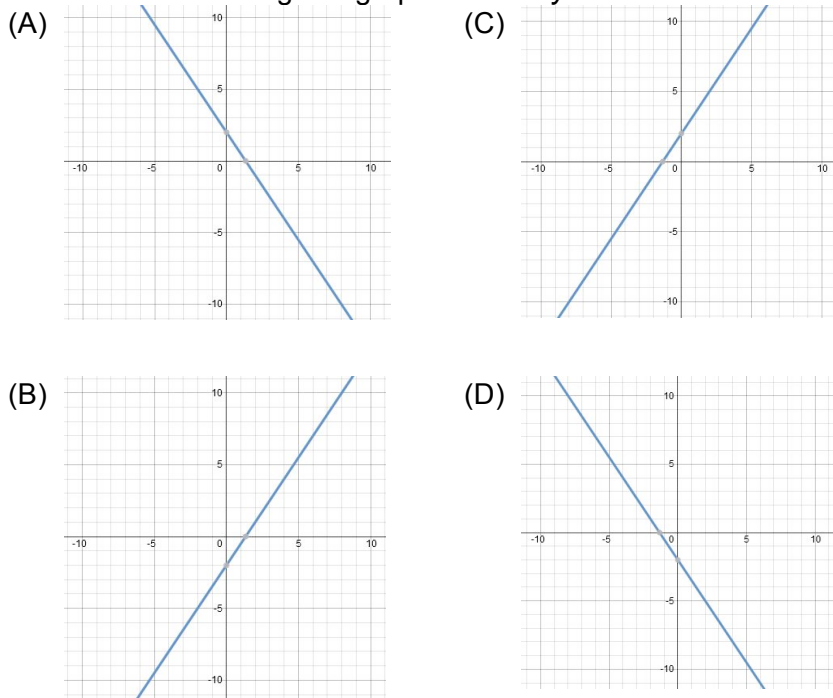
Name _____ Period _____

NOTE: ANY TALKING OR SUSPICIOUS COMMUNICATION DURING OR AFTER THE IN-CLASS FINAL EXAM TEST WILL RESULT IN AN AUTOMATIC GRADE OF 0%.

Multiple Choice. In the blank to the left of the statement or question, write the upper-case letter corresponding to the answer that best completes or answers the statement or question.

- _____ 1. Which of the following equations is a line passing through points $(-4, -1)$ and $(0, 7)$?
 (A) $y = 2x + 9$ (B) $y = 2x + 7$ (C) $y = \frac{1}{2}x + 7$ (D) $y = -\frac{1}{2}x + 7$

- _____ 2. Which of the following is a graph of $3x + 2y = 4$?



- _____ 3. Choose the equation that represents a parabola with the following characteristics:
 • Opens down
 • Has a vertex of $(-1, -5)$

(A) $y = (x - 1)^2 - 5$ (B) $y = (x + 1)^2 - 5$ (C) $y = -(x - 1)^2 - 5$ (D) $y = -(x + 1)^2 - 5$

- _____ 4. Find all zeros: $f(x) = x^3 - 2x^2 + x - 2$.

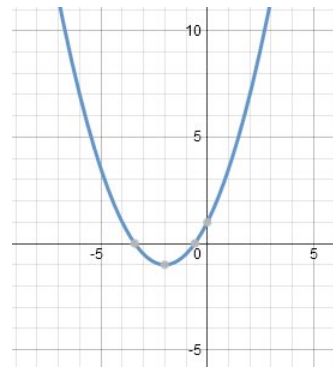
(A) $x = 2$ (B) $x = i, \pm 2$ (C) $x = \pm i, 2$ (D) $x = \pm 1, 2$

- _____ 5. Solve the equation: $x^4 - 5x^2 + 4 = 0$.

(A) $x = \pm 1, \pm 2$ (B) $x = \pm i, \pm 2$ (C) $x = \pm 1, \pm 2i$ (D) $x = \pm i, \pm 2i$

_____ 6. Which equation is graphed at right?

- (A) $y = 2(x + 2)^2 - 1$
- (B) $y = 2(x - 2)^2 - 1$
- (C) $y = \frac{1}{2}(x + 2)^2 - 1$
- (D) $y = \frac{1}{2}(x - 2)^2 - 1$

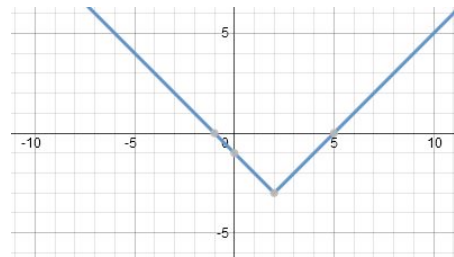


_____ 7. Identify the vertex and y-intercept of the graph of the function $y = 3x^2 - 12x + 13$.

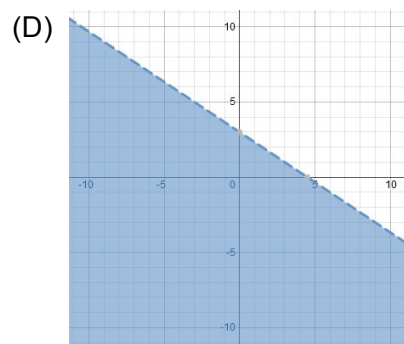
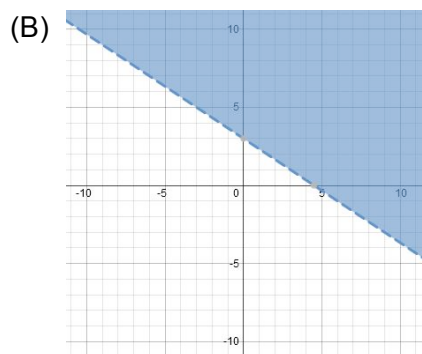
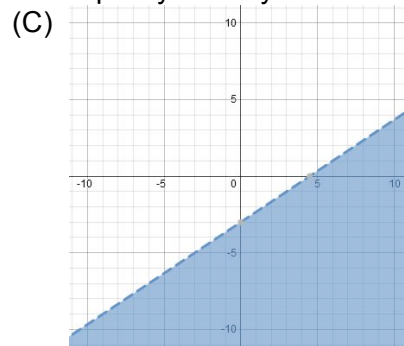
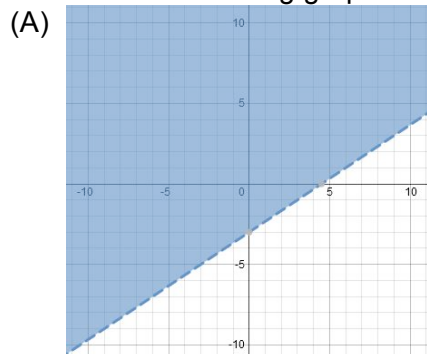
- (A) Vertex: (2, 1), y-intercept: -13
- (B) Vertex: (2, 1), y-intercept: 13
- (C) Vertex: (-2, 49), y-intercept: -13
- (D) Vertex: (-2, 49), y-intercept: 13

_____ 8. Which equation is graphed at right?

- (A) $y = |x - 2| - 3$
- (B) $y = |x - 2| + 3$
- (C) $y = |x + 2| - 3$
- (D) $y = |x + 2| + 3$



_____ 9. Which of the following graphs represents the inequality $2x + 3y < 9$?



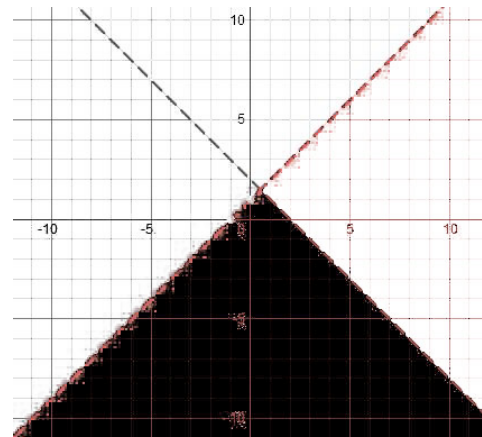
_____ 10. Which system of equations is graphed?

(A) $y < -x + 2$
 $y > x + 1$

(B) $y > -x + 2$
 $y > x + 1$

(C) $y > -x + 2$
 $y < x + 1$

(D) $y < -x + 2$
 $y < x + 1$



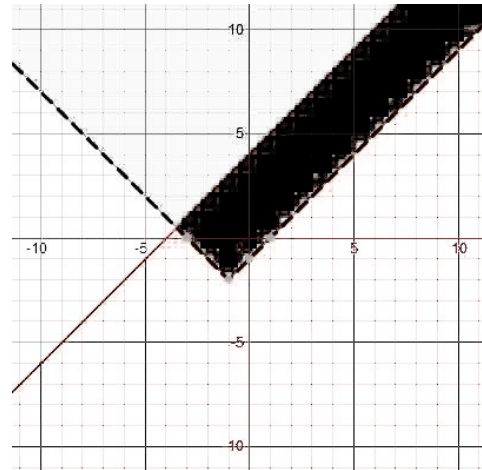
_____ 11. Which system of inequalities is graphed at right?

(A) $y > |x + 1| - 2$
 $y \geq x + 4$

(B) $y < |x + 1| - 2$
 $y \geq x + 4$

(C) $y > |x + 1| - 2$
 $y \leq x + 4$

(D) $y < |x + 1| - 2$
 $y \leq x + 4$



Term One Practice Test (No Calculator)

PT – AA – T3

Name _____ Period _____

NOTE: ANY TALKING OR SUSPICIOUS COMMUNICATION DURING OR AFTER THE IN-CLASS FINAL EXAM TEST WILL RESULT IN AN AUTOMATIC GRADE OF 0%.

Multiple Choice. In the blank to the left of the statement or question, write the upper-case letter corresponding to the answer that best completes or answers the statement or question.

_____ 12. What is the correct list of possible rational zeros for $f(x) = 3x^3 - 2x^2 + 2$?

(A) $\pm 1, \pm 3, \pm \frac{1}{2}, \pm \frac{3}{2}$

(C) $\pm 1, \pm 3, \pm \frac{1}{3}, \pm \frac{2}{3}$

(B) $\pm 1, \pm 2, \pm \frac{1}{3}, \pm \frac{2}{3}$

(D) $\pm 1, \pm 2, \pm \frac{1}{2}, \pm \frac{3}{2}$

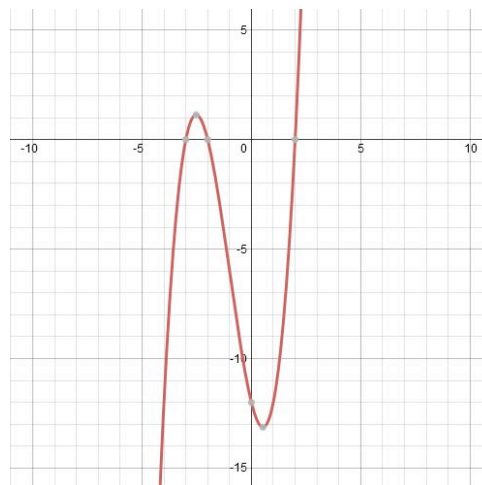
_____ 13. Find all real zeros of the graph of $y = x^3 + 3x^2 - 4x - 12$.

(A) $-2, 2, 3$

(B) $-3, -2, 2$

(C) $-12, -2, 2, 3$

(D) $-12, -3, -2, 2$



_____ 14. Which of the following is a factor of $x^2 + 8x + 16$?

(A) $(x - 4)$

(B) $(x + 4)$

(C) $(x + 8)$

(D) $(x + 16)$

_____ 15. What is the vertex and axis of symmetry of the graph?

(A) vertex: $(-3, 2)$

axis of symmetry: $y = 2$

(B) vertex: $(-3, 2)$

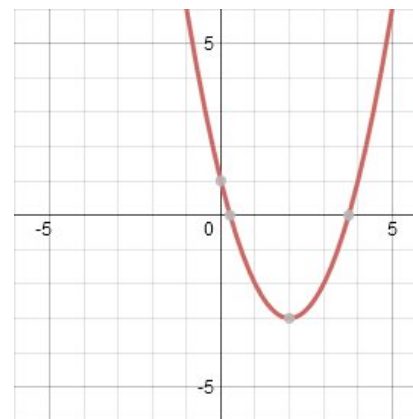
axis of symmetry: $y = -3$

(C) vertex: $(2, -3)$

axis of symmetry: $y = 2$

(D) vertex: $(2, -3)$

axis of symmetry: $y = -3$



_____ 16. Solve the equation: $-(x + 2) - 2x = -2(x + 1)$

(A) 1

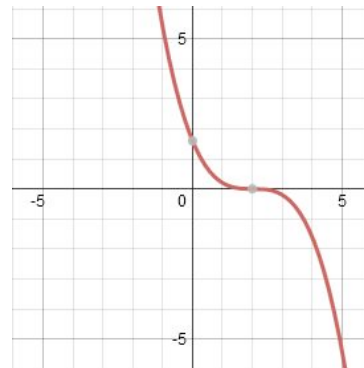
(B) -1

(C) $\frac{1}{2}$

(D) 0

- _____ 17. What is the quotient of $(3x^3 + 7x^2 + 5) \div (x + 1)$?
 (A) $3x^2 + 10x + 10$, R 15 (C) $3x^2 - 4x - 4$, R 9
 (B) $3x^2 - 10x + 10$, R -15 (D) $3x^2 + 4x - 4$, R 9
- _____ 18. Find the zeros of $f(x) = (x - 2)^4(x + 6)^5$.
 (A) 2, multiplicity of 4; -6, multiplicity of 5
 (B) 2, multiplicity of 4; 5, multiplicity of -6
 (C) 4, multiplicity of 2; -6, multiplicity of 5
 (D) 4, multiplicity of 2, 5, multiplicity of -6
- _____ 19. Solve the equation: $x^2 + 12x + 61 = 0$.
 (A) -1, -11 (B) $-6 \pm 5i$ (C) $-6 \pm \sqrt{97}$ (D) $-6 \pm i\sqrt{61}$
- _____ 20. Solve the equation: $4x^2 + 4x - 35 = 0$.
 (A) $x = \frac{5}{4}$, $x = -7$ (C) $x = -\frac{35}{2}$, $x = \frac{1}{2}$
 (B) $x = -\frac{5}{2}$, $x = \frac{7}{2}$ (D) $x = \frac{5}{2}$, $x = -\frac{7}{2}$

- _____ 21. Describe the end behavior of the graph of $f(x)$.
 (A) $\lim_{x \rightarrow -\infty} f(x) = -\infty$, $\lim_{x \rightarrow \infty} f(x) = -\infty$
 (B) $\lim_{x \rightarrow -\infty} f(x) = -\infty$, $\lim_{x \rightarrow \infty} f(x) = \infty$
 (C) $\lim_{x \rightarrow -\infty} f(x) = \infty$, $\lim_{x \rightarrow \infty} f(x) = -\infty$
 (D) $\lim_{x \rightarrow -\infty} f(x) = \infty$, $\lim_{x \rightarrow \infty} f(x) = \infty$



- _____ 22. Classify the polynomial $x^2 - 4x + 2$ by degree .
 (A) cubic (B) quadratic (C) quartic (D) quintic
- _____ 23. Which of the following is a factor of $3x^2 - x - 4$?
 (A) $(3x - 4)$ (B) $(3x + 4)$ (C) $(3x - 1)$ (D) $(3x + 1)$
- _____ 24. The zeros of a polynomial function $f(x)$ are -4, 0 and 2. The leading coefficient is 1. What polynomial is this in standard form?
 (A) $f(x) = x^3 - 2x^2 - 8x$ (C) $f(x) = x^3 + 2x^2 - 8x$
 (B) $f(x) = x^3 - 4x^2 - 8x$ (D) $f(x) = x^3 + 6x^2 - 8x$
- _____ 25. Solve $4(x - 1)^2 = 28$.
 (A) $1 + \sqrt{7}$ (B) $1 + 2\sqrt{7}$ (C) $1 \pm \sqrt{7}$ (D) $1 \pm 2\sqrt{7}$
- _____ 26. Solve the following system of equations to find the value of x :
 $x = -2y - 1$
 $2x - y = 13$
 (A) $x = -5$ (B) $x = -3$ (C) $x = 3$ (D) $x = 5$
- _____ 27. Solve the following system of equations:
 $-3x - 5y = -23$
 $2x - 4y = -14$
 (A) (1, 4) (B) (4, -1) (C) (1, -4) (D) (-4, 1)

_____28. Which equation represents a line with a slope of -3 and goes through the point $(1, 5)$?
 (A) $y = 3x + 8$ (B) $y = 3x - 2$ (C) $y = -3x - 8$ (D) $y = -3x + 8$

_____29. Write in standard $a + bi$ form: $(3 - 6i)(9 - 4i)$.
 (A) $-51 - 66i$ (B) $-3 + 66i$ (C) $3 - 42i$ (D) $3 - 66i$

_____30. Given $f(x) = x^2 + 3x - 5$, find $f(-2)$.
 (A) -7 (B) -3 (C) -1 (D) 5

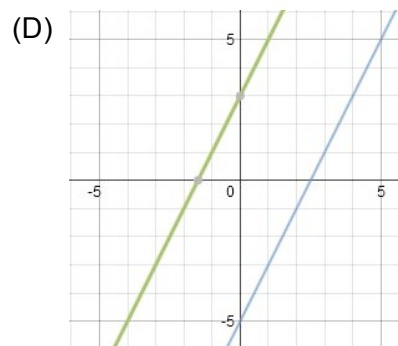
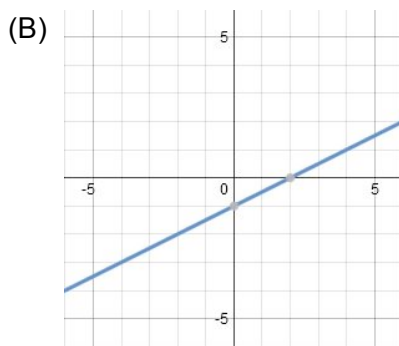
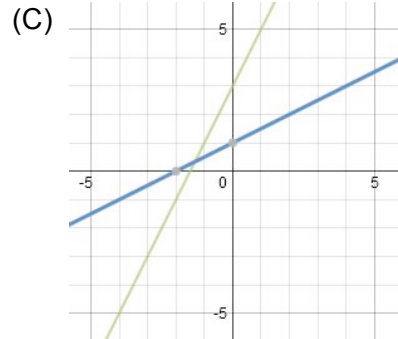
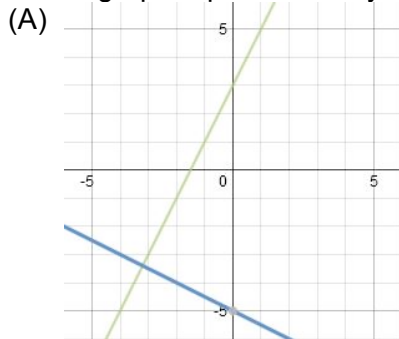
_____31. Write in standard $a + bi$ form: $(3 - 2i) - (9 + 4i)$.
 (A) $-6 - 6i$ (B) $-6 + 2i$ (C) $12 - 6i$ (D) $12 + 2i$

_____32. Which equation represents a line that passes through the point $(5, 7)$ and is parallel to the line $y = 2x + 1$?

- (A) $y - 5 = 2(x - 7)$ (C) $y - 5 = -\frac{1}{2}(x - 7)$
 (B) $y - 7 = 2(x - 5)$ (D) $y - 7 = -\frac{1}{2}(x - 5)$

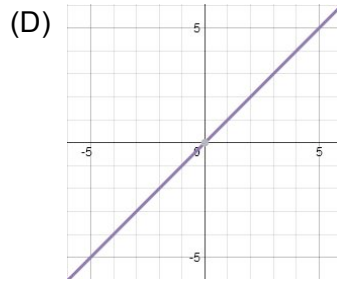
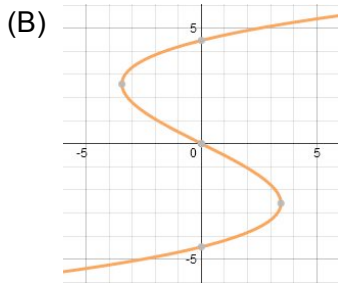
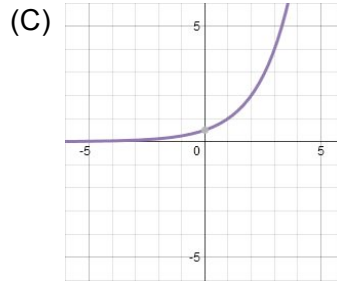
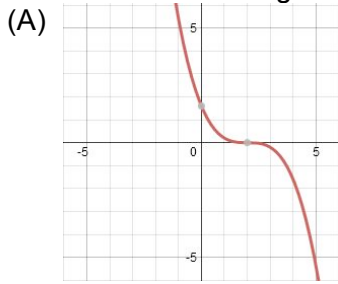
_____33. What point is a solution of the system of inequalities:
 $x - 3y > 6$
 $y \geq -\frac{2}{3}x + 4$?
 (A) $(0, 0)$ (B) $(0, 5)$ (C) $(10, 0)$ (D) $(0, -5)$

_____34. Which graph represents a system of equations with no solutions?



_____35. Evaluate $(x + 1)^2 + 3x$ when $x = -2$.
 (A) -4 (B) 3 (C) 12 (D) -5

_____ 36. Which of the following is NOT the graph of a function?



_____ 37. Which inequality is the solution of $4(-2x + 2) < 24$?
 (A) $x > -2$ (B) $x > 2$ (C) $x < -2$ (D) $x < 2$

_____ 38. Solve $|x + 2| = 12$.
 (A) $x = 10$ or $x = -10$ (C) $x = 14$ or $x = -14$
 (B) $x = 14$ or $x = -10$ (D) $x = 10$ or $x = -14$

_____ 39. Mr. Geist's class is trying to raise money for a trip to a private chemistry laboratory. The entrance fee for all of the students is a fee of \$4000, and each student's plane ticket will cost \$300. As a result, students are hoping to raise at least \$14,000. Which of the following inequalities represents this scenario?
 (A) $300 + 4000x \geq 14000$ (C) $300x + 4000 \geq 14000$
 (B) $300 + 4000x \leq 14000$ (D) $300x + 4000 \leq 14000$

_____ 40. Mr. Schumann has some one dollar bills and some five dollar bills in his wallet. He counts them up and notices he has 10 bills. When he figures out how much money he has, it comes to \$27. Which system of equations can be used to find the number n of one dollar bills and f of five dollar bills?
 (A) $n + f = 27$ (B) $n + f = 27$ (C) $n + f = 10$ (D) $n + f = 10$
 $n + 5f = 10$ $5n + f = 10$ $n + 5f = 27$ $5n + f = 27$

_____ 41. Which ordered pair is a solution of the following system of equations:
 $5x + 6y = -9$ and $-x - 8y = -5$?
 (A) (3, 1) (B) (3, -1) (C) (3, -1) (D) (-3, 1)

_____ 42. The Wichman Manufacturing Corporation calculates its revenue R , in millions of dollars, based on c , the number of computers it manufactures, with the following formula $R = -4c^2 + 8c + 12$. Find the Wichman Manufacturing Corporation's maximum revenue.
 (A) \$1 million (B) \$2 million (C) \$8 million (D) \$16 million

_____43. Walker Office Supply is designing paper with the area to be 99 square inches. The paper area is modeled by the equation $99 = x^2 - 2x$. What value of x is closest to giving the specified area of the paper?
 (A) 9 (B) 10 (C) 11 (D) 12

_____44. The temperature of freezing water in degrees Celsius is 0°C , while the temperature in degrees Fahrenheit for freezing water is 32°F . The temperature of boiling water in degrees Celsius is 100°C , while the temperature of boiling water in degrees Fahrenheit is 212°F . If the relationship between degree Celsius C and the temperature of degrees Fahrenheit F is linear, which equation models this relationship?
 (A) $F - 212 = \frac{9}{5}(C - 100)$ (C) $F - 212 = \frac{5}{9}(C - 100)$
 (B) $F - 100 = \frac{9}{5}(C - 212)$ (D) $F - 100 = \frac{5}{9}(C - 212)$

_____45. Mr. Geist is making explosives for the United States Army. He needs to make a total of at least 30 explosives. At least 10 of these explosives must be RDX. No more than 15 of these explosives can be mercury fulminate. Let x be the explosives made of RDX, and let y be the explosives made of mercury fulminate. Which of the following graphs would represent this scenario with the black area containing the solutions?

