

TEST NAME: **Algebra 2 EOC Practice Cooper (COPY)**
TEST ID: **190429**
GRADE: **09 - 12**
SUBJECT: **Mathematics**
TEST CATEGORY: **School Interim Assessment**

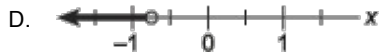
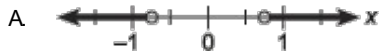
05/06/14, Algebra 2 EOC Practice Cooper (COPY)

Student: _____

Class: _____

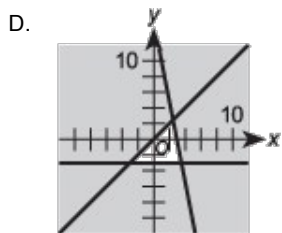
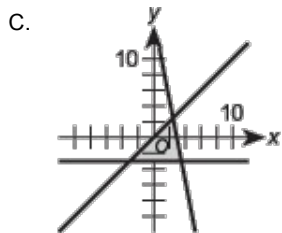
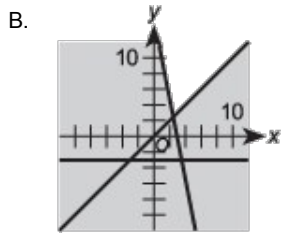
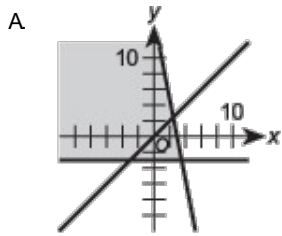
Date: _____

1. Which graph represents the solution set of $4|x| - 3 > 0$?



2. Which graph represents the solution set to this system of equations?

$$\begin{cases} y \leq x \\ y \geq -3 \\ y \leq 15 - 5x \end{cases}$$



3. Given:

$$x + y \leq 6$$

$$x - y \leq 6$$

$$x \geq 0$$

$$y \geq 0$$

Which point maximizes the objective function $P(x,y) = 3x + 4y$?

A. (0,0)

B. (0,6)

C. (4,0)

D. (8,1)

4. What are the zeros of the quadratic function $f(x) = x^2 + 3x + 1$?

A. $\frac{-3 \pm \sqrt{5}}{2}$

B. $\frac{-3 \pm \sqrt{13}}{2}$

C. $\frac{3 \pm \sqrt{5}}{2}$

D. $\frac{3 \pm \sqrt{13}}{2}$

5. Evaluate $\sum_{x=1}^{10} (7 - 2x)$.

A. -8

B. -13

C. -40

D. -80

6. The height above ground of an object thrown upward from an initial height of s ft with an initial velocity of v ft/sec is modeled by $h(t) = -16t^2 + vt + s$. Javier throws a baseball upward at 80 ft/sec from a platform 64 ft above the ground. To the nearest tenth of a second, when will the baseball hit the ground?
- A. 0.7
B. 2.5
C. 5.0
D. 5.7
7. One zero of $f(x) = x^4 + x^3 - 2x^2 + 4x - 24$ is $2i$. What are the other zeros of this function?
- A. $-2i, -3, 2$
B. $-2i, 3, -2$
C. $-4i, -3, 2$
D. $-4i, 3, -2$
8. What is the nature of the zeros of the polynomial $f(x) = 2x^3 - x^2 - 18x + 9$?
- A. 3 real rational
B. 3 real; 1 rational and 2 irrational
C. 1 real rational, 2 nonreal complex
D. 1 real irrational, 2 nonreal complex
9. Kickball games last a maximum of 60 minutes and ties are allowed. However, there is a "mercy" rule. A game will end if at least 40 minutes have passed and one team is ahead by at least 10 points. If t is time, in minutes, and d is the difference in points, what compound inequality describes the "mercy" rule?
- A. $t \geq 40$ and $d \geq 10$
B. $40 \leq t < 60$ and $d \geq 10$
C. $t \leq 40$ or $d \geq 10$
D. $40 \leq t < 60$ or $d \geq 10$

10. Given $x > 0$, at which value of x will $y_2 - y_1 = 2$?

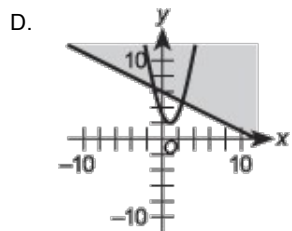
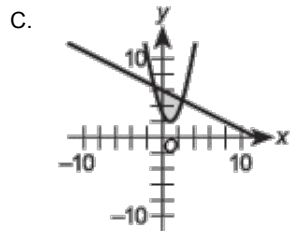
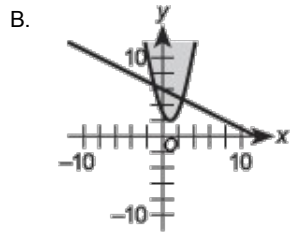
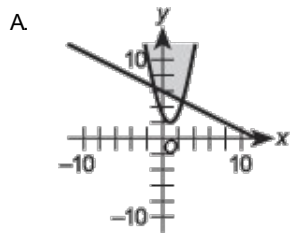
$$y_1 = 2x^2 - 2x + 5$$

$$y_2 = 3x^2 - 5x + 7$$

- A. 2
- B. 3
- C. 4
- D. 5

11. Which graph represents the solution set of this system of inequalities?

$$\begin{cases} y \geq x^2 - 2x + 3 \\ x + 2y \leq 12 \end{cases}$$



12. Rationalize the denominator and simplify: $\frac{4+\sqrt{6}}{4+\sqrt{2}}$

A. $\frac{8-\sqrt{2}}{7}$

B. $\frac{8-2\sqrt{2}-\sqrt{3}+2\sqrt{6}}{7}$

C. $8+2\sqrt{2}-\sqrt{3}+2\sqrt{6}$

D. $\frac{16-4\sqrt{2}-2\sqrt{3}+4\sqrt{6}}{14}$

13. Simplify $(2\sqrt{5})^2 - (3 - \sqrt{-6})(3 + \sqrt{-6})$.

A. 1

B. 5

C. 11

D. 17

14. What is the solution set to this inequality?

$$x^2 - 6x + 7 \leq 2x - 5$$

A. $\{x \mid x \leq 2 \text{ or } x \geq 6\}$

B. $\{x \mid x < 2 \text{ or } x > 6\}$

C. $\{x \mid 2 \leq x \leq 6\}$

D. $\{x \mid 2 < x < 6\}$

15. While working on a resistance problem, an electrical engineer encounters the equation $\frac{3x-5}{x^2-2x-3} - \frac{2x+5}{x^2-x-2} = 0$. Before continuing her work, she must solve the equation. If only nonnegative values are acceptable, what solution(s) will she find?

- A. 5
- B. 10
- C. 1 and 0
- D. 2 and 3

16. Scientists use the Beaufort wind scale to approximate wind speed. The formula is $B = 1.69\sqrt{s+4.45} - 3.49$, where B is the Beaufort number and s is the wind speed in miles per hour. To the nearest mile per hour, what is the approximate wind speed if the Beaufort number is 6 ?

- A. 2
- B. 12
- C. 27
- D. 253

17. Rewrite this expression in simplest form. Assume variables represent positive numbers.

$$\sqrt{\frac{16w^2y^3}{75x^5}}$$

- A. $\frac{\sqrt{3xy}}{3x}$
- B. $\frac{4wy\sqrt{3xy}}{15x^3}$
- C. $\frac{4wy^2\sqrt{5xy}}{25x^3}$
- D. $\frac{4wy^2\sqrt{3xy}}{15x^3}$

18. If $\log_2 x = -3$, what is x ?

- A. $\frac{1}{9}$
- B. $\frac{1}{8}$
- C. 8
- D. 9

19. On the first of every month, a new library receives a new shipment of 575 book titles. If the library starts the beginning of the first year with 3,000 book titles and does receive a shipment that month, how many book titles will it have at the end of 3 years?

- A. 42,900
- B. 23,700
- C. 5,363
- D. 4,150

20. In her garden, Ginny is creating a brick mosaic in a trapezoidal shape. The mosaic pattern has 6 rows. The first row has 8 bricks, and the last row has 24 bricks. Given that Ginny's pattern follows an arithmetic sequence, how many bricks does she need?

(Note: Partial bricks are allowed.)

- A. 112
- B. 96
- C. 64
- D. 38

21. A career advisor tells Ming that a financial consultant has a \$43,000 salary for the first year, and each year thereafter receives a 3% increase in salary from the previous year. If Ming takes a job as a financial consultant, what will be her salary for the 35th year?

- A. \$ 86,860
- B. \$ 88,150
- C. \$117,472
- D. \$120,996

22. What is AB ?

$$A = \begin{bmatrix} -3 & 1 \\ 6 & 0 \\ 4 & 2 \\ 9 & 7 \end{bmatrix} \quad B = \begin{bmatrix} 2 & 6 \\ 5 & 1 \end{bmatrix}$$

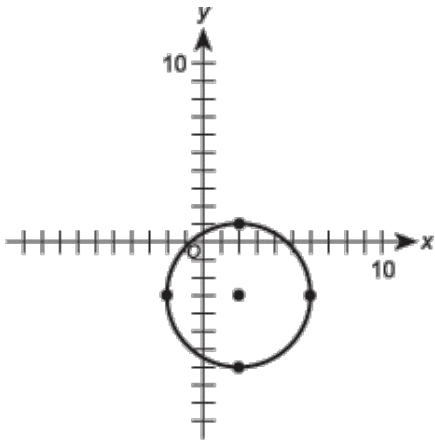
A. $\begin{bmatrix} 52 & 156 \\ 130 & 26 \end{bmatrix}$

B. $\begin{bmatrix} -1 & -17 \\ 12 & 36 \\ 18 & 26 \\ 53 & 61 \end{bmatrix}$

C. $\begin{bmatrix} -6 & 6 \\ 30 & 0 \\ 8 & 12 \\ 45 & 7 \end{bmatrix}$

D. $\begin{bmatrix} -42 & 14 \\ 84 & 0 \\ 56 & 28 \\ 126 & 98 \end{bmatrix}$

23. Find the equation of this circle.



- A. $(x - 2)^2 + (y + 3)^2 = 4$
- B. $(x - 2)^2 - (y + 3)^2 = 4$
- C. $(x - 2)^2 + (y + 3)^2 = 16$
- D. $(x - 2)^2 - (y + 3)^2 = 16$

24. What are the x-intercepts of the ellipse with equation $9x^2 + 4y^2 = 36$?

- A. 2, -2
- B. 3, -3
- C. 4, -4
- D. 6, 0

25. What is the completely simplified expression of $\frac{x^3 - 4x}{x^5 - 8x^2}$?

- A. $\frac{x^3 - 4x}{x^5 - 8x^2}$
- B. $\frac{1}{x(x+2)}$
- C. $\frac{x^2 - 4}{x(x^3 - 8)}$
- D. $\frac{x+2}{x(x^2 + 2x + 4)}$

