

Name:

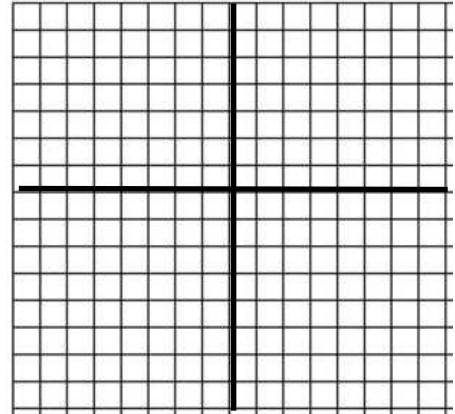
Show all work. No calculators.

Time it took to take test:

1. Use the quadratic formula to solve this equation:

$$3x^2 - 2x + 1 = 0$$

2. **(a)** Graph the equation $y = x^2 - 2x + 1$. **(b)** Find the coordinates of the points of intersection between $y = x^2 - 2x + 1$ and $y = 4$. **(c)** Shade the region determined by $y > x^2 - 2x + 1$ and $y < 4$.



3. Find all pairs (x, y) that satisfy both of the following equations simultaneously:

$$\begin{aligned} 2x + 3y &= 5 \\ x - 2y &= 8 \end{aligned}$$

4. Simplify:

$$\sqrt{\frac{3}{2}} + 4\sqrt{\frac{2}{3}} + \sqrt{24}$$

5. Solve for x :

$$x^{2/3} = 4$$

6. Solve for x :

$$\frac{5}{6} + \frac{3}{x+2} = \frac{2}{3}$$

Name:

Show all work. No calculators.

Page 2

7. Simplify:

$$\frac{x^3 - 16x - 6x^2}{x^2 - 8x - 20} \times \frac{-50 - 5x + x^2}{x^3 - 5x^2 - 24x}$$

8. Find three consecutive integers such that the product of the first and the second is equal to the product of -6 and the third.

9. How many different ways can all four of the letters A, B, C, and D be ordered if no repetition is allowed?

10. Find the equation of the line that passes through (2, 1) and is perpendicular to $2x - 3y = 6$.

Name:

Show all work. No calculators.

Page 3

11. Simplify.

$$\sqrt[5]{16\sqrt{2}}$$

12. Convert the rectangular coordinates $-8R + 17U$ ($-8i + 17j$) to polar form.

$$-8R + 17U$$

13. Solve by factoring.

$$14x^3 = 42x - 7x^2$$

14. Solve.

$$\sqrt{x} + 2 = \sqrt{x+12}$$

15. Factor.

$$27x^3y^6 - a^9c^{12}$$

16. Expand.

$$(a^{3/2} + c^{1/4})^2$$

Name:

Show all work. No calculators.

Page 4

17. Find $fg(2)$ if

$$f(x) = (x-1)^2; D = \{\text{Reals}\} \text{ and}$$

$$g(x) = x+3; D = \{\text{Integers}\}.$$

18. Simplify.

$$\frac{4i - 3i^2 - 2}{\sqrt{-25} - \sqrt{-3}\sqrt{-3}}$$

19. Solve.

$$\begin{cases} x + 2y + z = 7 \\ 3x - y + z = -12 \\ 4x + 3y - 2z = 9 \end{cases}$$

20. Complete the square.

$$y = -x^2 + 4x + 1$$

FreedomProject Academy
Advanced Math I Placement Test
Print, Complete Showing ALL
Work, (No Calculators), Scan, &
Email to tests@fpeusa.org

