College Algebra Exam 1 [1]

Name:

1. Solve the linear quation $(x+3)-2(x-4)=3x+8$.

2. Simplify $[0,1)\cup(\frac{1}{2},3)$.

3. Factor out a^2b-b^3.

4. Compute $(\frac{16}{25})^{-\frac{1}{2}}$.

5. Express $(\frac{x^2y^2}{z^2})^{-\frac{2}{3}}$ as exponents (in the form of $x^\alpha y^\beta z^\gamma$).

6. Simplify $(a+b)^2 + (a-b)^2$ in terms of a^2, ab, b^2.

7. Solve the system of linear equations

$$2x + y = 5$$

$$\frac{1}{2}x - 3y = -1$$

by substitution.

8. Solve the linear inequality $2x + 3 \geq 5x - 4$.

9. Solve the inequality $|5x - 2| < 8$.

10. Solve the equation $2x^2 - x - 1 = 0$.

11. Solve the equation $x^2 + 2x - 2 = 5$.

12. Reduce the rational function

$$\frac{x^2(y^2 - z^2)}{x^4(yz + z^2)}.$$

13. Solve the equation $x^6 - 5x^3 + 4 = 0$.

14. Express the complex number $\frac{3+2i}{3-2i}$ in its standard form $a + bi$.

15. Compute $\frac{2}{1+x} + \frac{3}{1-x^2}$ by taking the least common denominator.

16. Solve the inequality $x^2 - 8x + 12 < 0$.

17. Solve the inequality $\frac{x+2}{x-2} > 0$.

18. Rationalize the denominator
$$\frac{x}{\sqrt{1+x}-\sqrt{1-x}}.$$

19. Express $\frac{\sqrt{2x^3y^2}}{x^{-2}y}$ in exponent form $cx^{\alpha}y^{\beta}$.

20. Solve $\frac{1}{x^2}-2+x^2=0$