PREREQUISITE REVIEW
for MATH 1324 Mathematics for Business and Economics

1. Factor completely: \(3x^3 + 18x^2 + 27x\)
   \[
x^2 - 36 = (x-3)(x+6)(x-6)
   \]
2. Simplify: \(\frac{2}{x^2 + 4x - 12} + \frac{3}{x-2}\)
3. Add: \(\frac{2}{a+3} - \frac{3}{a}\)
4. Solve for \(x\): \(\frac{3}{x-2} + 1 = \frac{2}{x^2 - 2x}\)
5. Solve for \(x\): \(-3x + 2 \geq 5\)
6. Solve for \(x\): \(|2x - 1| = 4\)
7. Simplify: \((3xy)^2\)
8. Simplify: \(\frac{3}{a}\)
9. Solve for \(a\): \(a^2 - 2a = 15\)
10. Solve for \(b\): \(5b^2 - 7b + 1 = 0\)
11. Simplify: \(\sqrt[3]{8x^3y^6}\)
12. If a 20-foot ladder is placed against a wall, with the foot of the ladder 7 feet from the wall, how far up the side of the wall does the top of the ladder reach?
   \[2x + y = 4\]
13. Solve the system: \(x - 3y = 9\)
14. Write in simplified radical form: \((27a)^{\frac{2}{3}}\)
15. Jane wants to invest $6,000. If she invested part at 6% simple interest, part at 5% and received a total of $345 after one year, how much did she invest at each rate?