1. Multiply:
   a) \((x^2 + 2)(2x^2 - 3)\)
   b) \((3x + 2)(3x - 2)\)
   c) \((3x - 2)^2\)

2. Factor completely:
   a) \(2x^2 - 5x - 12\)
   b) \(8x^3 - 15x^2 - 2x\)

3. Find the intercepts, identify the slope of the line, and graph: \(5x - 2y = 10\)

4. Solve for \(x\): \(-5 < -3(x - 1.5) \leq 2\)

5. Solve for \(a\): \(a^2 + 4a = 45\)

6. Solve for \(b\): \(5b^2 - 5b + 1 = 0\)

7. Let \(f(x) = x^2 + 2x - 2\) and \(g(x) = 2 - 3x\). Find the following:
   a) \(f(-1)\)
   b) \(g(-3)\)
   c) \(f(a + 2)\)

8. Let \(f(x) = \frac{5}{b+5} - \frac{2}{b}\). Find the domain and simplify.

9. Solve for \(x\):
   \[\frac{2}{x-1} + 1 = \frac{2}{x^2 - x}\]

10. Identify the \(y\)-intercept, the vertex, and graph: \(y = 2(x - 3)^2 - 4\)

11. Simplify:
   a) \(3\sqrt{45} - 2\sqrt{125}\)
   b) \((-27)^{\frac{1}{3}}\)

12. Simplify:
    \[\frac{t^2 - 25}{t^2 + 8t + 15}\]
    \[\frac{t - 5}{t + 9}\]

13. If one side of a right triangle is 3 inches and the hypotenuse is 4 inches, how long is the other side of the triangle?

14. Solve this system of equations:
    \[\begin{align*}
    5x + 4y &= -8 \\
    2x - y &= -11
    \end{align*}\]

15. Arlene wishes to invest $5000. If she invests part at 7% simple interest, part at 6%, and receives a total of $332 after one year, how much does she invest at each rate?

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