

1. *Factor completely:* $4x^2 - 32x$

2. *Solve algebraically:* $x^2 - 11x = -24$

3. *Given the following:* $(3x^3 - 15x^2 - 6x + 12) \div (x - 5)$

a. Divide with a method of your choosing.

b. Is $x - 5$ a factor of the polynomial? Explain.

4. *Given:* $6x^4 - 11x^3 + 19x^2 - 23x + 4$

a. How many solutions are there? _____

b. Describe how or list the steps you would use to find those solutions. DO NOT SOLVE.

5. Simplify: $\frac{x}{x-3} + \frac{2x+2}{x^2-2x-3}$

6. Simplify: $\frac{x^2-9}{4x-24} \div \frac{6x-18}{8x+16}$

For questions #7-10, solve and check your solutions.

7. $\frac{x-3}{5} = \frac{8}{x}$

8. $\frac{x}{5} + \frac{9x-7}{5x+10} = \frac{7}{x+2}$

9. $\sqrt[3]{x-1} = 2$

10. $5 + \sqrt{4x-5} = 12$

$$f(x) = \sqrt{4x-1}$$

$$g(x) = 3x^2 + 5$$

$$h(x) = x^3 + 1$$

11. Find $g(f(x))$

12. Find $h^{-1}(x)$