

Cumulative Review #1

Factor.

1. $64x^3 + 125y^3$

2. $2x^3 - 8x^2 + 8x$

3. $36x^2 - 49y^2$

4. $6x^2 - 5x - 4$

Perform the indicated operation.

5. $(5x^2 - x - 4) - (2x^2 + 7x + 3)$

6. $(x^2 - x - 2)(2x^2 + 9x + 3)$

7. $(x - 4)(x + 4)(x + 1)$

8. $(x^2 + 10x + 21) \div (x + 3)$

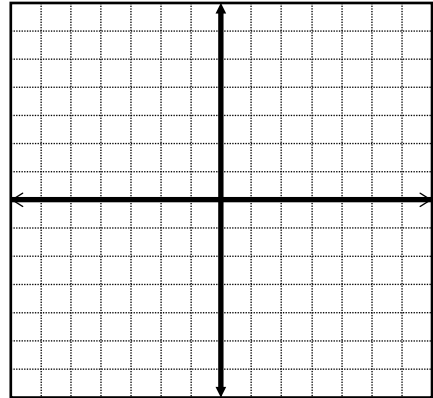
Solve.

9. $3x^2 - 3x - 4 = 0$

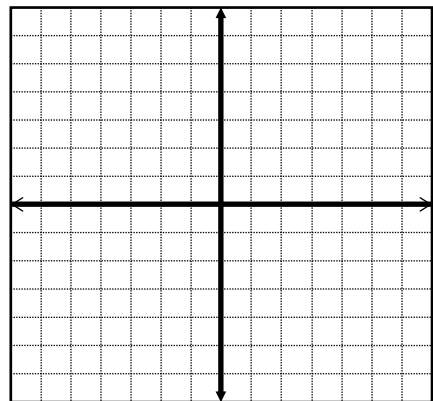
10. $x^3 + 2x^2 - x - 2 = 0$

Graph the function. State the x- and y-intercepts.

11. $f(x) = x^4 - 5x^2 + 4$



12. $f(x) = x(x-1)^2(x+1)$



Simplify the rational expression. State the excluded values.

13. $\frac{x^2 + 8x + 16}{x^2 - 16}$

14. $\frac{2b^2 - 12b}{b+5} \div \frac{b-6}{b+5}$

$$15. \frac{\frac{x-2}{x^2-9}}{\frac{x^2-4}{x+3}}$$

$$16. \frac{x}{x^2-2x-24} - \frac{x}{x^2-7x+6}$$

Solve.

$$17. \frac{6}{x} - \frac{1}{x^2+6x} = \frac{1}{x}$$

$$18. \frac{4}{x+1} + \frac{1}{x^2-5x-6} = \frac{1}{x-6}$$

1. $(4x+5y)(16x^2 - 20xy + 25y^2)$

2. $2x(x-2)^2$

3. $(6x-7y)(6x+7y)$

4. $(3x-4)(2x+1)$

5. $3x^2 - 8x - 7$

6. $2x^4 + 7x^3 - 10x^2 - 21x - 6$

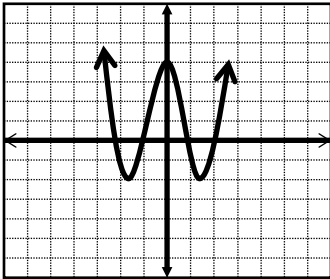
7. $x^3 + x^2 - 16x - 16$

8. $x+7$

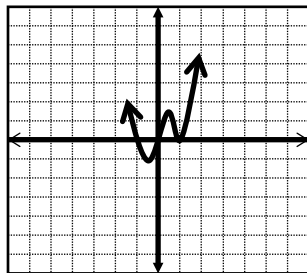
9. $x = \frac{3 \pm \sqrt{57}}{6}$

10. $x = -2, -1, 1$

11. x-intercepts: $-1, 1, -2, 2$
y-intercept: 4



12. x-intercepts: $0, 1, -1$
y-intercept: 0



13. $\frac{x+4}{x-4}, x \neq -4, 4$

14. $2b, b \neq -5, 6$

15. $\frac{1}{(x-3)(x+2)}, x \neq -3, 3, -2, 2$

16. $\frac{-5x}{(x-6)(x+4)(x-1)}, x \neq 6, -4, 1$

17. $x = \frac{-29}{5}$

18. $x = 8$