

Chapter 3 and 4 Review

Multiply.

1) $(2a - 7)(a + 5)$

2) $(2v - 7)(5v - 5)$

3) $(4x + 4y)(8x - 4y)$

4) $(3m - 8n)(2m + 3n)$

Remainder Theorem: Evaluate each function at the given value. Yes/ No, is it a root?

5) $f(a) = a^3 - 5a^2 + 3a + 3$ at $a = 2$

6) $f(a) = a^3 - 3a^2 - 10a - 5$ at $a = -2$

Find all zeros. State whether it would bounce or pass at each zero(multiplicity).

7) $f(x) = (x - 5)(x - 2)(x + 2)$

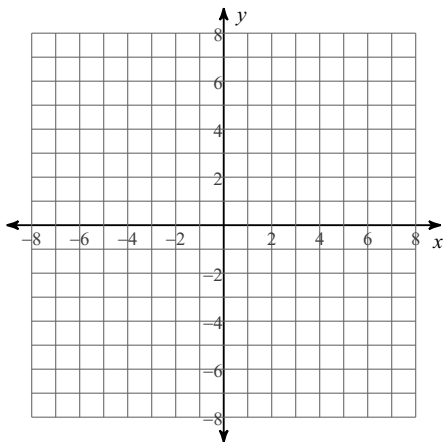
8) $f(x) = (x + 3)(x - 1)(x + 1)$

9) $f(x) = x(x + 1)(x^2 + 1)$

10) $f(x) = (x - 1)(x + 1)(x - 2)(x + 2)(x^2 + 4)$

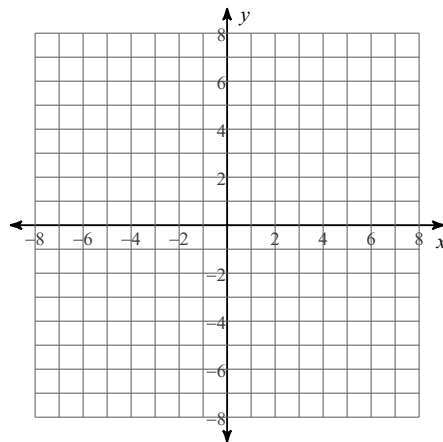
Use long division to factor completely, then graph.

11)



$x + 5 \sqrt{x^3 + 8x^2 + 17x + 10}$

12)



$x - 3 \sqrt{x^3 - 9x^2 + 26x - 24}$

Simplify each expression.

$$13) \frac{4}{3x+18} + \frac{4}{3x}$$

$$14) \frac{4}{3} + \frac{5m}{3m^2-9m}$$

$$15) \frac{7}{n-6} + \frac{6}{n-3}$$

$$16) \frac{n-5}{n+2} - \frac{5n}{n+8}$$

$$17) \frac{a^2-5a-50}{a^2+6a+5}$$

$$18) \frac{p^2+7p+12}{3p^3+9p^2}$$

$$19) \frac{5n^2}{35n^3-20n^2} \cdot \frac{49n-28}{10}$$

$$20) \frac{1}{8x} \div \frac{x+8}{8x^2+16x}$$

$$21) \frac{x^2+4x-21}{x^2+7x-30} \times \frac{x^2+12x+20}{x^2-x-6}$$

$$22) \frac{3x^2-7x+4}{4x^2-x-3}$$

Match the following functions with the corresponding graph.

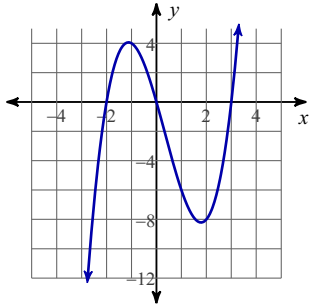
23) i. $x(x+2)(x-3)$

ii. $(x-2)^2(x+3)$

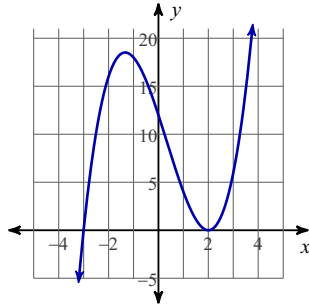
iii. $(x-2)(x+3)^2$

iv. $x^2(x-3)$

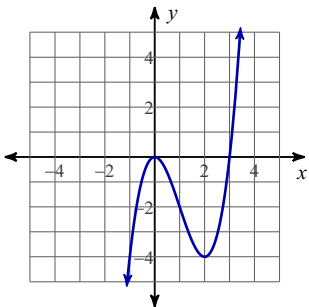
A)



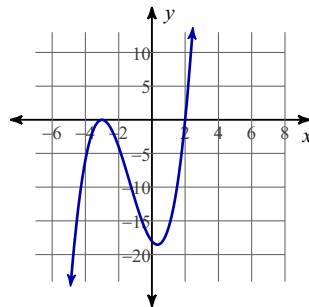
B)



C)



D)



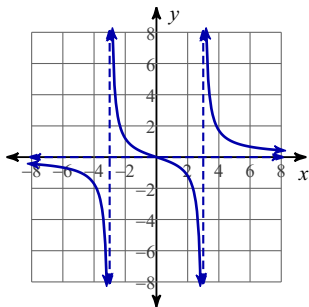
24) i. $\frac{1}{(x-3)(x+3)}$

ii. $\frac{3x}{(x-3)(x+3)}$

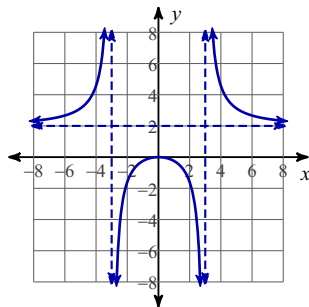
iii. $\frac{2x^2}{(x-3)(x+3)}$

iv. $\frac{(x+1)^2}{(x-3)(x+3)}$

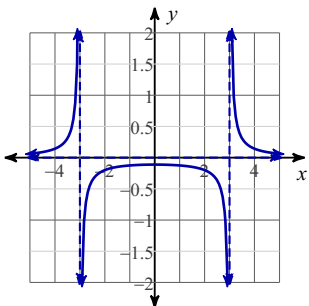
A)



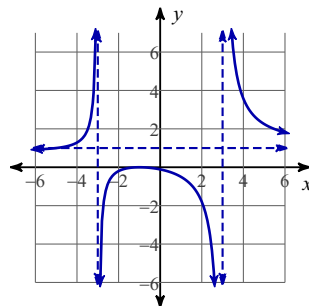
B)



C)



D)



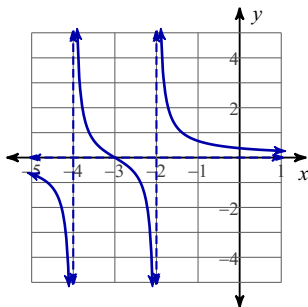
25) i. $\frac{2}{(x-2)^2(x+3)}$

ii. $\frac{x+3}{x^2+6x+8}$

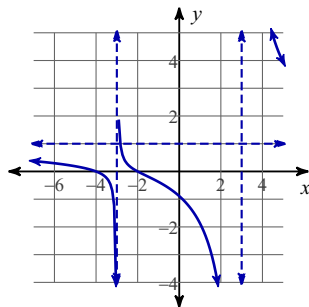
iii. $\frac{3}{x^2-3x-10}$

iv. $\frac{x^2+6x+8}{(x-3)(x+3)}$

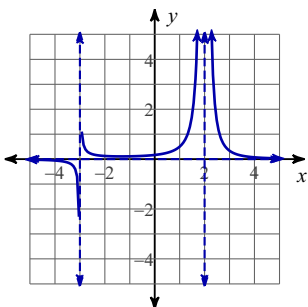
A)



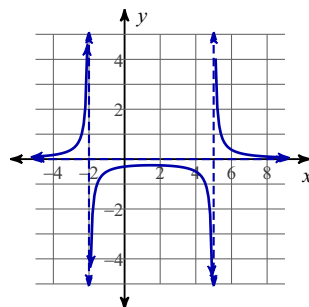
B)



C)



D)



26) Determine the features and graph:

$$\frac{x+1}{(x-3)(x+3)}$$

x-intercept(s): _____

Vertical Asymp.: _____

End Behavior Asymp.: _____

27) Determine the features and graph:

$$\frac{x+2}{x^2+6x+5}$$

x-intercept(s): _____

Vertical Asymp.: _____

End Behavior Asymp.: _____

