

$$54. \frac{\left(\frac{1}{3x} - \frac{4}{x+2}\right)}{\left(\frac{x^2+2x-3}{x^2+2x}\right)} \rightarrow \frac{\frac{x+2-4(3x)}{3x(x+2)}}{\frac{(x-1)(x+3)}{x(x+2)}}$$

$$\frac{-11x+2}{3x(x+2)} \cdot \frac{x(x+2)}{(x-1)(x+3)} \rightarrow$$

$$\boxed{\frac{-11x+2}{3(x-1)(x+3)}}$$

54. _____

Solve and check for extraneous solutions.

$$55. \frac{6+5x}{3x} = \frac{7}{1}$$

$$6+5x=21$$

$$5x=15$$

$$x=3$$

55. x=3

$$56. \frac{15}{x} = \frac{6}{x} + 2$$

$$15=6+2x$$

$$9=2x$$

56. x=4.5

$$57. \frac{1}{x-2} + \frac{1}{x+5} = \frac{5}{x^2+x-6}$$

$$x+3+x-2=5$$

$$2x+1=5$$

$$2x=4$$

x=2 is extraneous

57. no solution

$$58. \frac{3x}{x+1} = \frac{12}{x^2-1} + 2$$

$$3x(x-1) = 12 + 2(x^2-1)$$

$$3x^2 - 3x = 12 + 2x^2 - 2$$

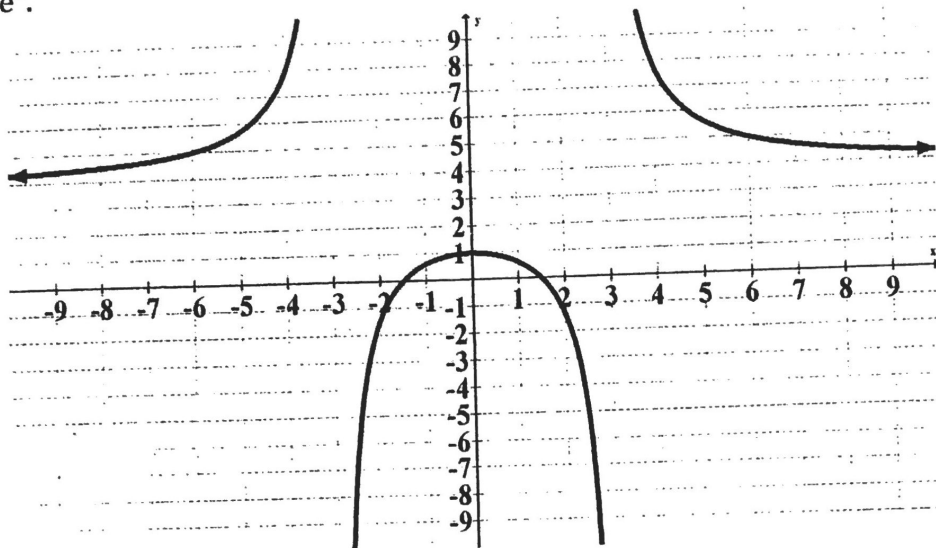
$$x^2 - 3x - 10 = 0$$

$$(x-5)(x+2) = 0$$

$$x=5 \quad x=-2$$

58. x=5, -2

59. Given the graph, identify the following characteristics. If none exists for a specific characteristic, write "none".



- a. Vertical Asymptote(s): $x = 3, x = -3$
 b. Domain: $(-\infty, -3) \cup (-3, 3) \cup (3, \infty)$
 c. Zero(s): $-1.5, 1.5$
 d. Y Intercept: $(0, 1)$
 e. Horizontal Asymptote: $y = 4$

60. For the given function, $f(x) = \frac{4x^2}{x^2 - 5x + 4}$, state the following:

- Vertical Asymptote: $x = 1, x = 4$ Domain: $(-\infty, 1) \cup (1, 4) \cup (4, \infty)$
 Horizontal Asymptote: $y = 4$
 Zeroes: 0 y-intercept: $(0, 0)$

$$\frac{4x^2}{(x-4)(x-1)}$$