

Algebra II Test #4.2

Name Key Date _____ Period _____

State the domain, holes, vertical asymptote(s), horizontal asymptote, y-intercept, x-intercept(s) and then sketch a graph.:

1-7) $g(x) = \frac{2x^2 - x - 3}{x^2 - 5x - 6} = \frac{(2x-3)(x+1)}{(x-6)(x+1)}$

D: all \mathbb{R} except $x=6, -1$

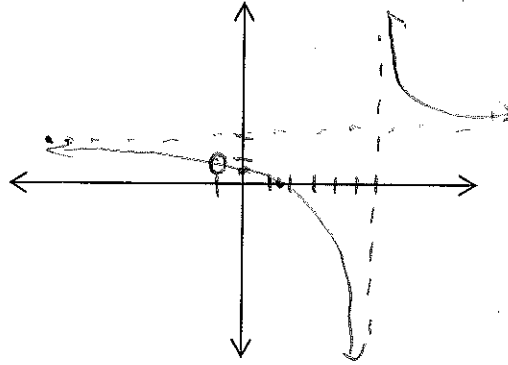
Hole: $(-1, 5/7)$

VA: $x=6$

HA: $y=2$

y-int: $(0, 1/2)$

x-int: $(3/2, 0)$



8-13) $h(x) = \frac{3x^2}{5x(x-2)} = \frac{3x}{5(x-2)}$

D: all \mathbb{R} except $x=0, 2$

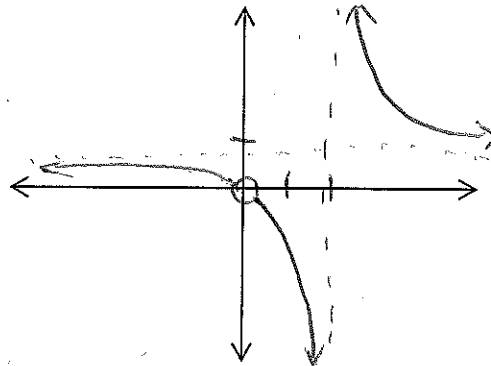
Hole: $(0, 0)$

VA: $x=2$

HA: $y=3/5$

y-int: none

x-int: none



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Work must be shown for full credit. BOX your answer. Work = 1/2 credit. Correct answer = 1/2 credit. NO other credit on these problems. Round answers to 2 decimal places.

14) Bill can paint a closet in 2 hours. Bob can paint the same closet in 3 hours. How long will it take them to paint the closet working together?

$$\frac{1}{2} + \frac{1}{3} = \frac{1}{T}$$

$$\frac{5}{6} = \frac{1}{T}$$

$$T = \boxed{\frac{6}{5} \text{ hrs}} = 1.2 \text{ hrs} = 1 \text{ hr } 12 \text{ min}$$

15) It takes Zach 30 minutes to do the dishes. If his brother Mike helps, it only takes 12 minutes. How long would it take Mike to do the dishes alone?

$$\frac{1}{30} + \frac{1}{x} = \frac{1}{12}$$

$$\frac{1}{x} = \frac{1}{20}$$

$$x = \boxed{20 \text{ minutes}}$$

16) An elevator went from the bottom to the top of a tower at an average speed of 4 m/s, remained at the top for 90 seconds, and then returned to the bottom at 6 m/s. If the total elapsed time was 5.5 minutes, how high was the tower?

$$\frac{d}{4} + 90 + \frac{d}{6} = 330$$

$$\frac{d}{4} + \frac{d}{6} = 240$$

$$\frac{10d}{24} = 240$$

$$d = \boxed{576 \text{ m}}$$

17) A tub contains 250 liters of a 37% salt solution. How much water must be added to reduce it to a 25% salt solution?

$$250(.37) = 92.5 \text{ salt}$$

$$\frac{92.5}{250+x} = .25 = \frac{1}{4}$$

$$250+x = 370$$

$$x = \boxed{120 \text{ Liters}}$$