Math-3A Name_____ ID: 1

SM3-A HW #4-6 (Practice the reciprocal function)

Date_____ Period____

1) $f(x) = \dfrac{3x - 9}{x - 4}$

a) equation in standard reciprocal form?
b) Vertical Asymptote?
c) Horizontal Asymptote?
d) x-intercept?

2) $f(x) = \dfrac{8x}{4x + 3}$

a) equation in standard reciprocal form?
b) Vertical Asymptote?
c) Horizontal Asymptote?
d) x-intercept?

3) $f(x) = \dfrac{x^2 + 8x - 20}{-x + 4}$

a) Rewrite the equation as a linear function (w/ remainder over divisor)
b) The quotient (not the remainder) determines end-behavor.
What is the end behavior?
c) What are the x-intercepts? (Write as x-y pairs)
d) What is the vertical asymptote?

4) $f(x) = \dfrac{4x^2 - x}{x - 3}$

a) Rewrite the equation as a linear function (w/ remainder over divisor)
b) The quotient (not the remainder) determines end-behavor.
What is the end behavior?
c) What are the x-intercepts? (Write as x-y pairs)
d) What is the vertical asymptote?

5) $f(x) = \dfrac{8x + 3}{-4x + 12}$

a) Write the equation as quotient plus remainder over divisor.
b) Vertical Asymptote?
c) Horizontal Asymptote?
d) x-intercept?

6) $y = \dfrac{4x - 3}{x - 4}$

a) Write the equation as quotient plus remainder over divisor.
b) Vertical Asymptote?
c) Horizontal Asymptote?
d) x-intercept?

7) $y = \dfrac{2x - 5}{x + 2}$

a) equation in standard reciprocal form?
b) Vertical Asymptote?
c) Horizontal Asymptote?
d) x-intercept?

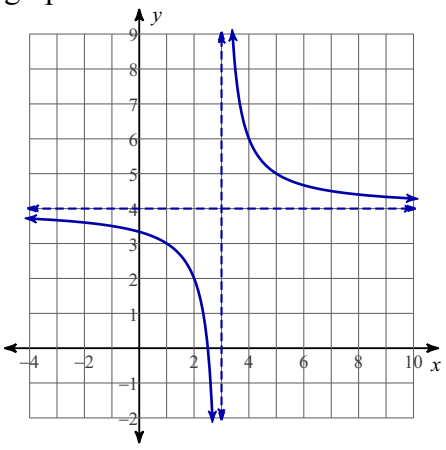
8) Given the equation: $y = \dfrac{3}{x + 4} - 5$:

a) what is the horizontal asymptote?
b) what is the vertical asymptote?
c) what is the domain?
d) what is the range?

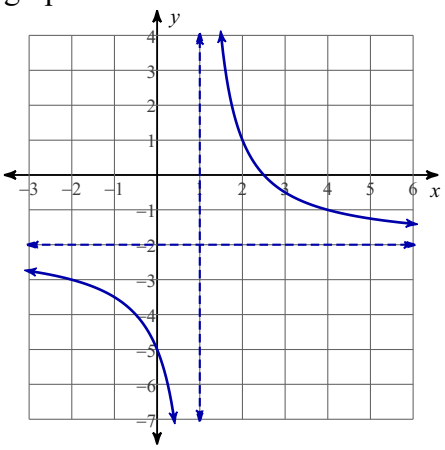
9) Given the equation: $y = -\dfrac{2}{x + 1} + 6$:

a) what is the horizontal asymptote?
b) what is the vertical asymptote?
c) what is the domain?
d) what is the range?

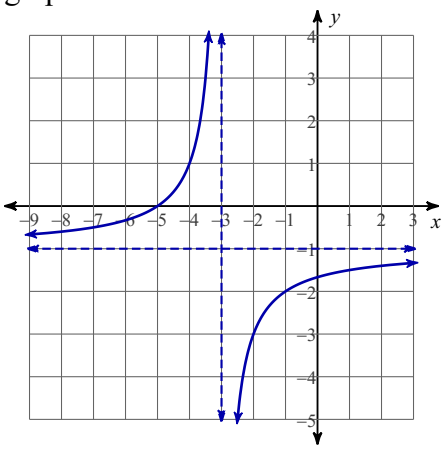
10) The following is a transformation of the function: $y = \dfrac{1}{x}$. What is the equation of the graph?



11) The following is a transformation of the function: $y = \frac{1}{x}$. What is the equation of the graph?



12) The following is a transformation of the function: $y = \frac{1}{x}$. What is the equation of the graph?



Simplify each expression.

13) $\frac{3}{3xy} + \frac{2}{5y^2}$

14) $\frac{3b}{b-3} + \frac{3}{b-4}$

Convert to a 1st degree polynomial (using division).

15) $y = \frac{3x^2 + 16x + 27}{x + 2}$

16) $y = \frac{4x^2 + 10x - 10}{x + 3}$