Name: _____ Date: _____

BLM 9–2

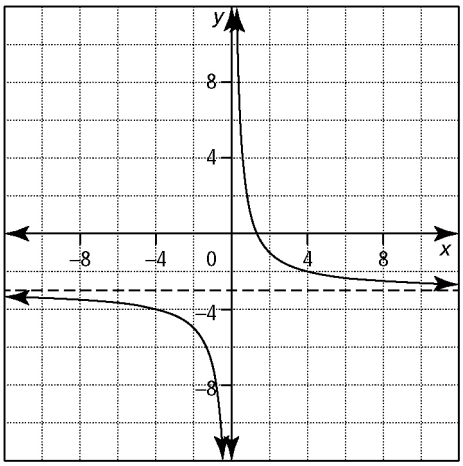
Section 9.1 Extra Practice

1. Match each function with its graph.

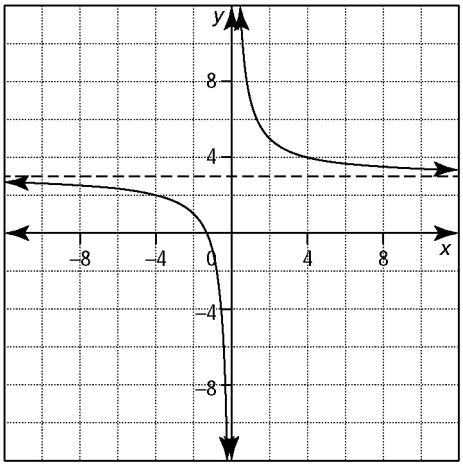
a) $y = \frac{4}{x} + 3$ **b)** $y = \frac{4}{x+3}$

c) $y = \frac{4}{x-3}$ **d)** $y = \frac{4}{x} - 3$

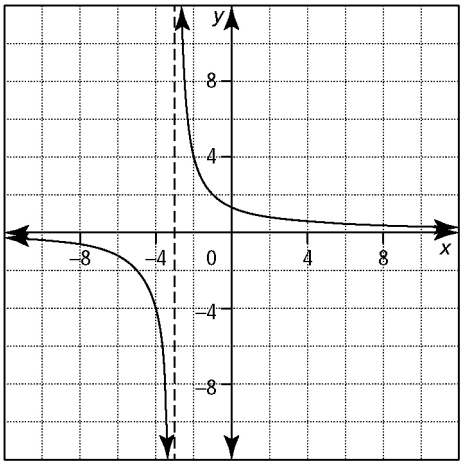
A



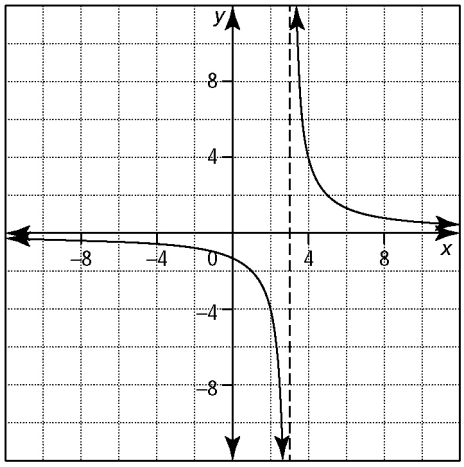
B



C



D



2. Graph the function $y = \frac{5}{x-2}$ using a table of values. Analyse your graph and use a table to summarize the following characteristics:

- non-permissible value(s)
- behaviour near non-permissible value(s)
- end behaviour
- domain
- range
- equation of vertical asymptote
- equation of horizontal asymptote

3. Sketch and graph each function. Identify the domain and range, intercepts, and asymptotes.

a) $y = \frac{3}{x-1}$

b) $y = \frac{2}{x} + 6$

c) $y = \frac{5}{x+4} - 2$

d) $y = \frac{1}{x+2} + 8$

4. Graph each function using technology, and identify any asymptotes and intercepts.

a) $y = \frac{2x+5}{x-1}$

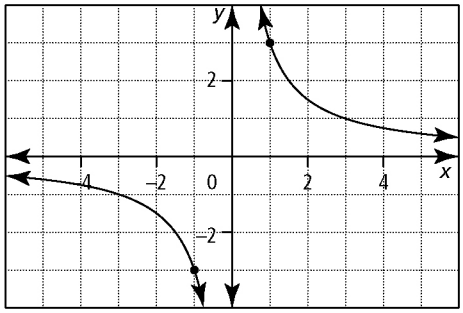
b) $y = \frac{4x-3}{x+2}$

Name: _____ Date: _____

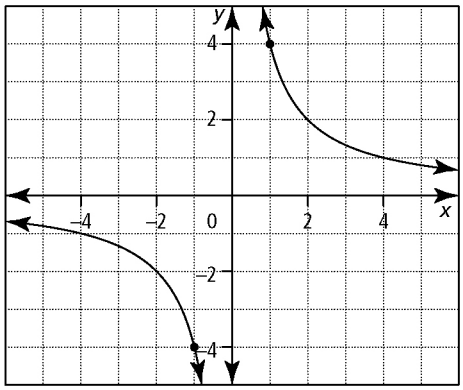
BLM 9–2
(continued)

5. Write the equation of each function in the form $y = \frac{a}{x - h} + k$.

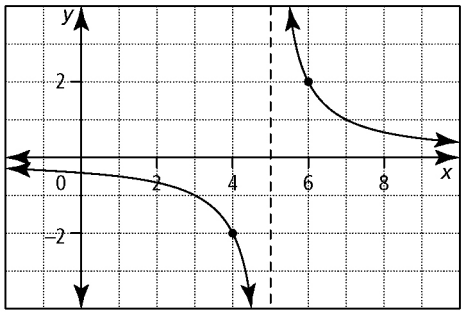
a)



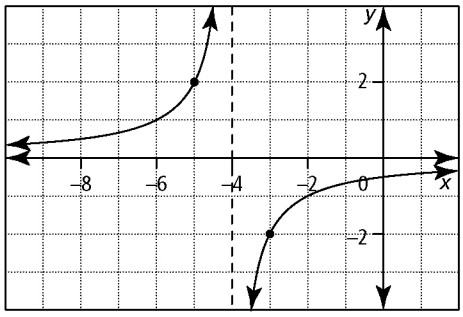
b)



c)



d)



6. The rational function $y = \frac{a}{x - 5} + k$ passes through points (6, 7) and (4, 1).

a) Determine the value of a and k.

b) Graph the function.

7. Sketch the graph of $y = \frac{1}{x^2}$ and $y = \frac{1}{x^2 + 6x + 9}$ on the same set of axes. Describe how one is a transformation of the other.

8. Use a table of values and a graph to analyse the function $y = \frac{2x - 1}{x - 7}$. Then, complete the table.

Characteristic	$y = \frac{2x - 1}{x - 7}$
Non-permissible value	
Behaviour near non-permissible value	
End behaviour	
Domain	
Range	
Equation of vertical asymptote	
Equation of horizontal asymptote	

9. The distance between two cities is 351 km.

a) Write an expression that you can use to calculate the time, t, in hours, that it takes to travel distance, d, in kilometres, at an average speed of s km/h.

b) Use your formula from part a) to determine how long it will take to travel from one city to the other at an average speed of 65 km/h.

c) If the trip from one city to the other took 5 h, determine the average speed, s, in kilometres per hour.