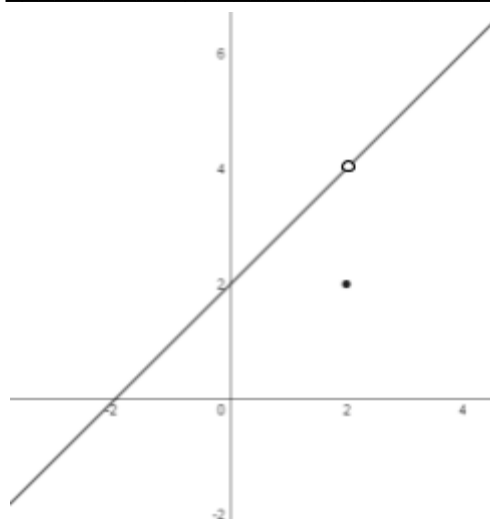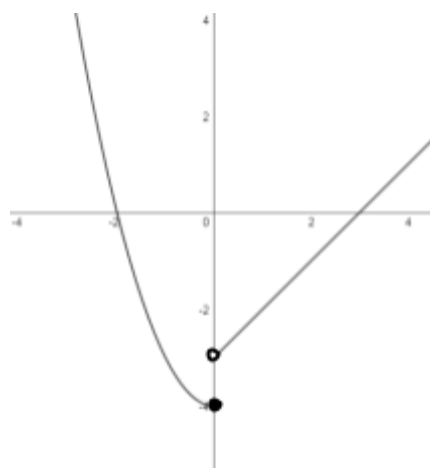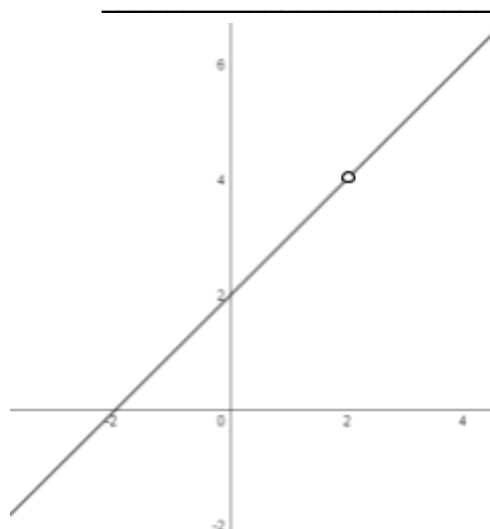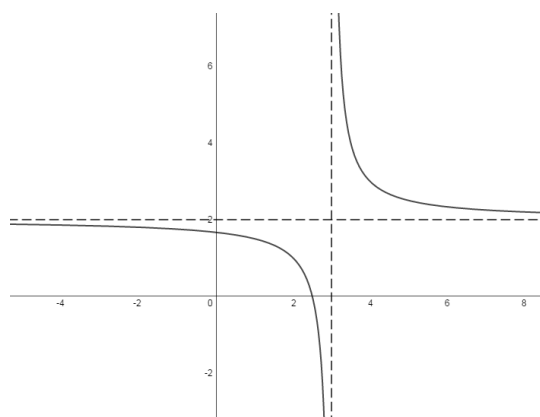4.2 Continuity

For a function to be continuous you need to draw it from left to right without picking up your pencil. Rather than consider where it is continuous, it is easier to consider where you have discontinuities.

Ex 1 Identify the types of discontinuities:

_____   _____

_____   _____

So, discontinuities can occur when

    1. _____

    2. _____

    3. _____

Therefore, a function is continuous at x = a if: _____

When discussing "is a function continuous", you either show that there are no discontinuities or find a single discontinuity. Generally, you only need to look for discontinuities when you have

_____ or _____.

Ex 2 Is the function continuous?

$$f(x) = \begin{cases} x + 4, x < 2 \\ x^2 - 2, x \geq 2 \end{cases}$$

Where are you going to check for discontinuity?

_____

Why?

_____

Ex 3 Is the function continuous?

$$g(x) = \frac{x^2 - x - 2}{x - 2}$$

Ex 4 Is the function continuous?

$$f(x) = x^3 - x$$

Worksheet