

Graph Sketching Page 1

Key Points:

- General shape.
- Mark any intersections with the coordinate axes.
- Mark the coordinates of any turning points.
- Indicate any asymptotes.

Sometimes the question will make it clear if certain things aren't required.

Linear

$$y = 2x - 1$$

$$2x + 3y = 6$$

Polynomials

$$y = x^3$$

$$y = (x - 1)(x + 2)(x - 3)$$

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

Quadratics

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

$$y = -x^2 - x + 2$$

Reciprocal Graphs

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

$$y = \frac{1}{(x - 2)}$$

$$y = \frac{1}{x^2}$$

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Exponential Functions

$$y = 3^x$$

$$y = e^x$$

Logarithmic Functions

$$y = \log_{10}(x)$$

$$y = \ln(x)$$

Circles

$$x^2 + y^2 = 1$$

$$x^2 + y^2 = 9$$

$$(x - 3)^2 + (y - 1)^2 = 9$$

Modulus Functions

$$y = |x|$$

$$y = |2x - 1|$$

$$y = |x^2 - x - 6|$$

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Trigonometric Functions

$$y = \sin(x)$$

$$y = \cos(x)$$

$$y = \tan(x)$$

Inverse Trigonometric Functions

$$y = \arcsin(x)$$

$$y = \arccos(x)$$

$$y = \arctan(x)$$

Reciprocal Trigonometric Functions

$$y = \operatorname{cosec}(x)$$

$$y = \sec(x)$$

$$y = \cot(x)$$