

## SECTION PROBLEMS (odd)

Section 3.3 Problems 27-29, 35 Section 3.4

Problems 27, 29, 45-49 Section 3.5 Problems 19-37, 59-71

1. Find:

- (i) intercepts
- (iv) asymptotes
- (i) intervals of increase or decrease
- (ii) relatively maximum or minimum values and
- (v) sketch the curve.

(a)  $y = \frac{2x}{x-3}$

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

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

(d)  $y = \frac{3x}{1-x^2}$

(e)  $y = \frac{x^2}{x^2-9}$

(f)  $y = \frac{x^3}{x^2-9}$ .

2. Find:

- (i) intervals of increase or decrease
- (ii) relative maximum or minimum values
- (iii) intervals of concavity
- (iv) points of inflection and
- (v) sketch the curve.

(a)  $y = x^{\frac{1}{5}}$

(b)  $y = x^{\frac{2}{5}}$

(c)  $y = x^{\frac{3}{7}}$

(d)  $y = x^{\frac{4}{7}}$

(e)  $y = 2x^{\frac{5}{3}} - 5x^{\frac{4}{3}}$   
 $[y' = \frac{10}{3}x^{\frac{1}{3}}(x^{\frac{1}{3}} - 2) \text{ and } y'' = \frac{20}{9}x^{-\frac{2}{3}}(x^{\frac{1}{3}} - 1)]$

(f)  $y = x^{\frac{5}{3}} - 5x^{\frac{2}{3}}$   
 $[y' = \frac{5}{3}x^{-\frac{1}{3}}(x - 2) \text{ and } y'' = \frac{10}{9}x^{-\frac{4}{3}}(x + 1)]$

(g)  $y = x^{\frac{2}{3}}(6-x)^{\frac{1}{3}}$   
 $[y' = \frac{4-x}{x^{\frac{1}{3}}(6-x)^{\frac{2}{3}}} \text{ and } y'' = \frac{-8}{x^{\frac{4}{3}}(6-x)^{\frac{5}{3}}}]$ .