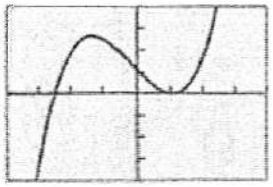
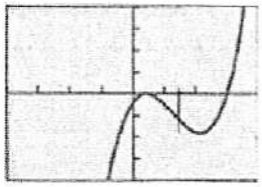
For each graph find the x and y-intercept, the end behavior, and the intervals of concavity. Then match them with the correct equation. You should be able to do this without a calculator.



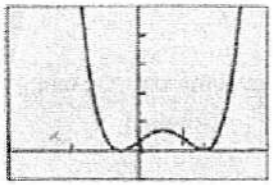
[–4, 4] by [–200, 200]

(a)



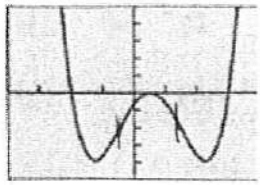
[–4, 4] by [–200, 200]

(b)



[–2, 2] by [–10, 50]

(c)



[–4, 4] by [–50, 50]

(d)

29. $f(x) = 20x^3 + 8x^2 - 83x + 55$

30. $f(x) = 35x^3 - 134x^2 + 93x - 18$

31. $f(x) = 44x^4 - 65x^3 + x^2 + 17x + 3$

32. $f(x) = 4x^4 - 8x^3 - 19x^2 + 23x - 6$

(29) $y = 20x^3 + 8x^2 - 83x + 55$

Graph (a): x and y-int:

$x \approx -2.5, x = 0$ $y = 55$

End Behavior:

$\lim_{x \to \infty} f(x) = \infty$ $\lim_{x \to -\infty} f(x) = -\infty$

Intervals of Concavity:

$(-\infty, 0)$ down $(0, \infty)$ up

(30) $y = 35x^3 - 134x^2 + 93x - 18$

Graph (b): x and y-int:

$x \approx .5$ $x = 3$ $y = -18$

End Behavior:

$\lim_{x \to -\infty} f(x) = -\infty$ $\lim_{x \to \infty} f(x) = \infty$

Intervals of Concavity:

$(-\infty, 1.5)$ down

$(1.5, \infty)$ up

(31) Graph (c): x and y-int:

$x \approx -.5, 1$ $y = 3$

$y = 44x^4 - 65x^3 + x^2 + 17x + 3$

End Behavior:

$\lim_{x \to \pm\infty} f(x) = \infty$

Intervals of Concavity:

up $(-\infty, 0)$

down $(0, .75)$

up $(.75, \infty)$

(32) Graph (d): x and y-int:

$x \approx -1, .5, 3$ $y = -6$

End Behavior:

$\lim_{x \to \pm\infty} f(x) = \infty$

Intervals of Concavity:

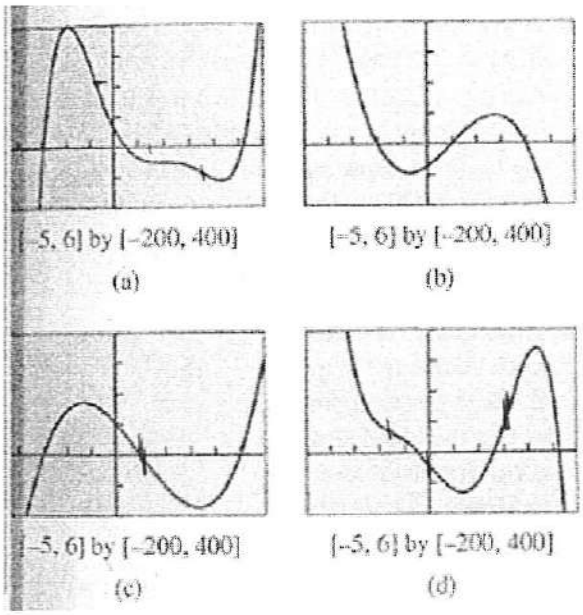
$(-\infty, -.5)$ up

$(-.5, 1.5)$ down

$(1.5, \infty)$ up

$y = 4x^4 - 8x^3 - 19x^2 + 23x - 6$

For each graph find the x and y-intercepts, the end behavior, and the intervals of concavity. Then match them with the correct equation. You should be able to do this without a calculator.



9. $f(x) = 7x^3 - 21x^2 - 91x + 104$

10. $f(x) = -9x^3 + 27x^2 + 54x - 73$

11. $f(x) = x^5 - 8x^4 + 9x^3 + 58x^2 - 164x + 69$

12. $f(x) = -x^5 + 3x^4 + 16x^3 - 2x^2 - 95x - 44$

(11) $f(x) = x^5 - 8x^4 + 9x^3 + 58x^2 - 164x + 69$

Graph (a): x and y-int:

$x = -3, .5, 5.1$ $y = 69$

End Behavior:

$\lim_{x \to \infty} f(x) = \infty$ $\lim_{x \to -\infty} f(x) = -\infty$

Intervals of Concavity:

down $(-\infty, -.8) \cup (1.5, 3.5)$

up $(-.8, 1.5) \cup (3.5, \infty)$

(9) Graph (c): x and y-int:

$x = -3, 1, 5$ $y\text{-int} = 104$

End Behavior:

$\lim_{x \to -\infty} f(x) = -\infty$ $\lim_{x \to \infty} f(x) = \infty$

Intervals of Concavity:

down $(-\infty, 1)$

up $(1, \infty)$

$y = 7x^3 - 21x^2 - 91x + 104$

(10) $y = -9x^3 + 27x^2 + 54x - 73$

Graph (b): x and y-int:

$x = -2, 1, 3$ $y\text{-int} = -.75$

End Behavior:

$\lim_{x \to -\infty} f(x) = \infty$ $\lim_{x \to \infty} f(x) = -\infty$

Intervals of Concavity:

$(-\infty, 1)$ up

$(1, \infty)$ down

Graph (d): x and y-int:

$x = -5, 2.5, 3.1$ $y = -44$

End Behavior:

$\lim_{x \to -\infty} f(x) = \infty$ $\lim_{x \to \infty} f(x) = -\infty$

Intervals of Concavity:

up $(-\infty, -1.5) \cup (0, 3)$

down $(-1.5, 0) \cup (3, \infty)$

(12) $-x^5 + 3x^4 + 16x^3 - 2x^2 - 95x - 44$