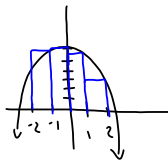


28) $y = -\frac{x^2}{2} + 6; [-2, 2]$



$f(2) = -\frac{4}{2} + 6 = 4(1)$
 $f(1) = -\frac{1}{2} + 6 = 5.5(1)$
 $f(0) = -\frac{0}{2} + 6 = 6(1)$
 $f(-1) = -\frac{1}{2} + 6 = 5.5(1)$
 $f(-2) = -\frac{4}{2} + 6 = 4(1)$

34) $\int_{-5}^{-3} \frac{4}{(2x+4)^2} dx$

$u = 2x + 4$
 $2 \cdot du = 2 dx$
 $2 \int_{-6}^{-2} \frac{du}{u^2} = \left. -\frac{2}{u} \right|_{-6}^{-2} = -\frac{2}{-2} - \left(-\frac{2}{-6}\right) = 1 - \frac{1}{3} = \frac{2}{3}$

29) $\int_1^3 (x^4 - 4x^3 + 3x^2 + 2x - 3) dx$

$\left. \frac{x^5}{5} - \frac{4x^4}{4} + \frac{3x^3}{3} + \frac{2x^2}{2} - 3x \right|_1^3$
 $\frac{243}{5} - 81 + 27 + 9 - (1/5 - 3 + 1 - 3)$
 $\frac{242}{5} - 52 \rightarrow \frac{242}{5} - \frac{260}{5} = -\frac{18}{5}$

30) $\int_{-1}^2 (-x^3 + x^2 + 4) dx$

$\left. -\frac{x^4}{4} + \frac{x^3}{3} + 4x \right|_{-1}^2$
 $= -\frac{16}{4} + \frac{8}{3} + 8 - \left(-\frac{1}{4} - \frac{1}{3} - 4\right)$
 $-\frac{33}{4} + 3 = \frac{45}{4}$

38) $\int_{-1}^0 \frac{12x}{(2x^2+3)^2} dx$

$u = 2x^2 + 3$
 $du = 4x dx$
 $3du = 12x dx$
 $\int_3^0 \frac{3du}{u^2} = \frac{3}{u} = \frac{3}{2x^2+3}$
 $f(0) = \frac{3}{2(0)^2+3} = 1$
 $f(-1) = \frac{3}{2(-1)^2+3} = \frac{1}{7}$
 $1 - \frac{1}{7} = \frac{6}{7}$

32) $\int \left(\frac{x^3}{2} - x - \frac{1}{2}\right) dx$

$\frac{x^4}{6} - \frac{x^2}{2} - \frac{1}{2}x - \frac{35}{6}$
 $-\frac{1}{6} - \frac{1}{2} - \frac{1}{2} = \frac{57}{6} + \frac{36}{6}$

41) $\int_0^2 \frac{8x}{(2x^2+4)^2} dx$

$u = 2x^2 + 4$
 $2du = 4x dx \cdot 2$
 $2du = 8x dx$
 $2 \int_4^{12} \frac{du}{u^2} = \left. -\frac{2}{u} \right|_4^{12} = -\frac{2}{12} + \frac{2}{4} = -\frac{1}{6} + \frac{3}{6} = \frac{2}{6} = \frac{1}{3}$

42) $\int_{-3}^0 \frac{2x}{(x^2+3)^2} dx$

$u = x^2 + 3$
 $du = 2x dx$
 $\int_3^0 \frac{du}{u^2} = \left. -\frac{1}{u} \right|_3^0 = \frac{1}{0} - \frac{1}{3} = \frac{1}{3}$
 $\frac{1}{x^2+3} = \frac{1}{3} + \frac{1}{12} = \frac{4}{12} = \frac{1}{3}$
 $\frac{1}{x^2+3} = \frac{1}{12}$

