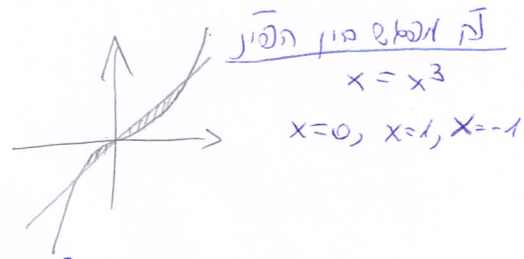


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(12P)

10) $g(-x) = -x = -g(x)$

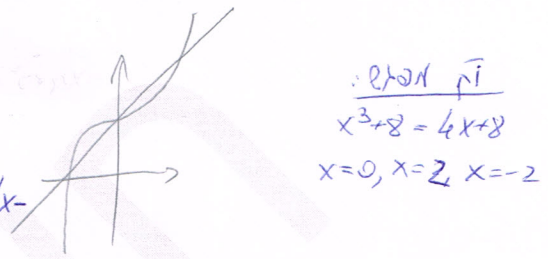
$f(-x) = (-x)^3 = -x^3 = -(x^3) = -f(x)$

11) $\int_{-1}^0 (x)^2 dx - \int_{-1}^0 (x)^2 dx + \int_0^1 (x)^2 dx - \int_0^1 (x)^2 dx =$
 $= \left[\frac{x^3}{3} \right]_{-1}^0 - \left[\frac{x^3}{3} \right]_{-1}^0 + \left[\frac{x^3}{3} \right]_0^1 - \left[\frac{x^3}{3} \right]_0^1 =$
 $= \pi(0 - (-\frac{1}{3})) - \pi(0 - (-\frac{1}{3})) + \pi(\frac{1}{3} - 0) - \pi(\frac{1}{3} - 0) = \frac{2}{3}\pi - \frac{2}{3}\pi = \frac{8}{21}\pi$



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(1210)

12) $\int_{-2}^0 (x^2+8)^2 dx - \int_{-2}^0 (x^2+8)^2 dx + \int_0^2 (4x+8)^2 dx - \int_0^2 (x^2+8)^2 dx =$
 $= \int_{-2}^0 (x^4 + 16x^2 + 64) dx - \int_{-2}^0 (6x^2 + x + 64) dx + \int_0^2 (16x^2 + 64x + 64) dx - \int_0^2 (x^4 + 8x^2) dx =$
 $\frac{\pi}{11} \int_{-2}^0 (x^4 + 16x^2 + 64) dx = \frac{\pi}{11} \left[\frac{x^5}{5} + 4x^3 + 64x \right]_{-2}^0 = \frac{\pi}{11} \left[0 - (-\frac{32}{5} - 32 - 128) \right] = \frac{\pi}{11} (160 + \frac{32}{5}) = \frac{816}{55}\pi$



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(1210)

13) $162\pi = \int_0^{\frac{36}{k}} (\sqrt{36-kx})^2 dx = \int_0^{\frac{36}{k}} (36-kx) dx = \left[36x - \frac{kx^2}{2} \right]_0^{\frac{36}{k}} = \left(\frac{1296}{k} - \frac{1296}{2k} \right) \pi$
 $162 = \frac{1296}{2k} \rightarrow k = 4$

השטח בין $y = \sqrt{36-kx}$ ל- x
 $\sqrt{36-kx} = 0$
 $x = \frac{36}{k}$

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(1210)

14) $8.1\pi = \int_0^m (x^2 - mx) dx = \int_0^m (x^4 - 2mx^3 + m^2x^2) dx = \left[\frac{x^5}{5} - \frac{mx^4}{2} + \frac{m^2x^3}{3} \right]_0^m$
 $8.1\pi = \left(\frac{m^5}{5} - \frac{m^5}{2} + \frac{m^5}{3} \right) \pi \rightarrow 8.1 = \frac{1}{30} m^5 \rightarrow m = 3$

השטח בין $y = x^2 - mx$ ל- x
 $x^2 - mx = 0$
 $x=0, x=m$

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(1210)

15) $9.6\pi = \int_0^b (\sqrt{b^3x})^2 dx - \int_0^b (x^2)^2 dx = \int_0^b (b^3x) dx - \int_0^b x^4 dx =$
 $\frac{9.6\pi}{10} = \left[\frac{b^3x^2}{2} \right]_0^b - \left[\frac{x^5}{5} \right]_0^b = \frac{b^5}{2} - \frac{b^5}{5} = \frac{3}{10} b^5$
 $9.6 = \frac{3b^5}{10} \rightarrow b^5 = 32 \rightarrow b = 2$

השטח בין $y = \sqrt{b^3x}$ ל- $y = x^2$
 $x^2 = \sqrt{b^3x}$
 $x=0, x=b$