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Wednesday, March 11, 2015 2:15 PM

(21) $C = 27.08e^{t/25}$ t = yrs after 1/1/80

Total Oil Consumption $= \int_0^{10} 27.08e^{t/25}\,dt = 27.08(25)e^{t/25}\Big|_0^{10} = 332.965$ billion gallons

(27) $\text{Trap}_{10} = \frac{1}{2}(120 + 2(110) + 2(115) + 2(115) + 2(119) + 2(120) + 2(120) +$
$2(115) + 2(112) + 2(110) + 121) = 1156.5$ cases

(31) False. The area above the x-axis > area below x-axis.

(32) True. Disp will be all positive, so it will = total distance.

(33) $A = 6(48 + 100 + 180 + 248) = 3456$ $\boxed{C}$

(34) $v(15) = v(0) + \sum a(t_k)\Delta t$

$= 5 + \frac{3}{2}(4 + 8(2) + 6(2) + 9(2) + 10(2) + 10)$

$= 125$ ft/sec $\boxed{D}$

(35) $F(t) = 12 + 6\cos\left(\frac{t}{\pi}\right)$ $0 \le t \le 60$

Customers $= \int_0^{60} \left(12 + 6\cos\left(\frac{t}{\pi}\right)\right)dt = 724.6$ $\boxed{B}$

(36) $y = 20e^{-.5t}$ tons/yr

Pollution Removed $= \int_0^{10} 20e^{-.5t}\,dt = 39.7$ $\boxed{A}$

(1) $A = \int_0^{\pi} (1 - \cos^2 x)\,dx = 1.571$

(3) $A = \int_0^1 (y^2 - y^3)\,dy = \left[\frac{1}{3}y^3 - \frac{1}{4}y^4\right]_0^1$ OR $A = \int_0^1 (\sqrt[3]{x} - \sqrt{x})\,dx = \left[\frac{3}{4}x^{\frac{4}{3}} - \frac{2}{3}x^{\frac{3}{2}}\right]_0^1$

$= \left(\frac{1}{3}(1)^3 - \frac{1}{4}(1)^4\right) - (0)$

$= \boxed{\frac{1}{12}}$

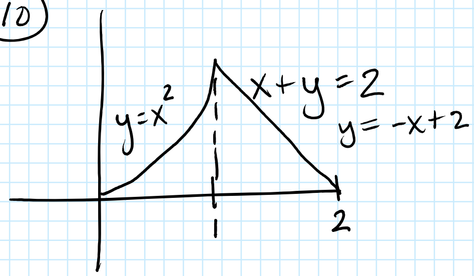
$= \left(\frac{3}{4}(1)^{\frac{4}{3}} - \frac{2}{3}(1)^{\frac{3}{2}}\right) - (0)$

$= \boxed{\frac{1}{12}}$

$= \boxed{\frac{1}{12}}$

$= \boxed{\frac{1}{12}}$

(10)



$$A = \int_0^1 x^2\,dx + \int_1^2 (-x+2)\,dx$$

$$= \frac{1}{3}x^3\Big|_0^1 + \left(-\frac{1}{2}x^2 + 2x\right)\Big|_1^2$$

$$= \left(\frac{1}{3}(1)^3 - 0\right) + \left(-\frac{1}{2}(2)^2 + 2(2)\right) - \left(-\frac{1}{2}(1)^2 + 2(1)\right)$$

$$= \frac{1}{3} + 2 - \frac{3}{2} = \boxed{\frac{5}{6}}$$