Worksheet For 11/14/13

Compute (using areas):

① $\int_{-2}^{1} 3\,dx$

② $\int_{-2}^{1} x\,dx$

③ $\int_{-1}^{3} (|x|-1)\,dx$

④ $\int_{-\pi}^{\pi} x^3\,dx$

⑤ $\int_{7}^{2} dx$.

Part 2

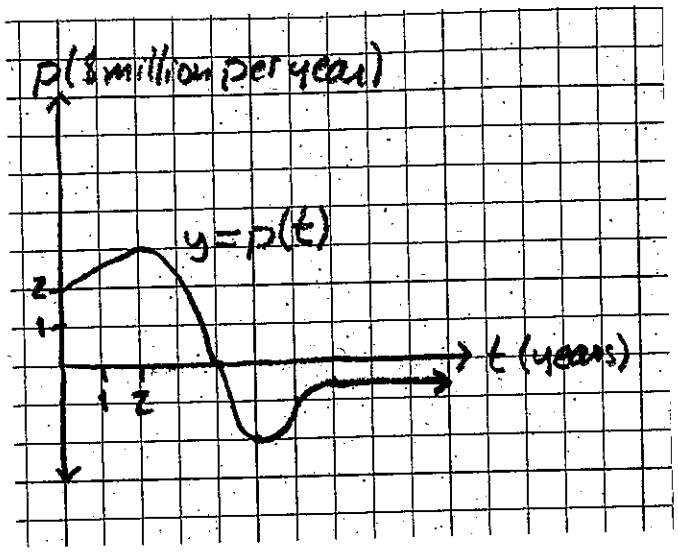
⑥ Find $\frac{d}{dx}\int_1^x \left(\frac{1}{t}\right)dt$

⑦ Find $\frac{d}{dx}\int_{12}^x \sqrt{s^2+17}\,ds$

⑧ Find $\frac{d}{dx}\int_7^{x^2} \sin t\,dt$

⑨ Find $\frac{d}{dx}\int_x^{100} e^t dt$

⑩



Let p(t) be the profit (in millions of dollars per year) that a company is bringing in, where t is in years. The graph is shown at right.

Let P(t) be the net profit from time 0 to time t.

a) What is P(0)?
b) When is P(t) largest?
c) Where is P(t) concave up/down?
d) Sketch P(t).