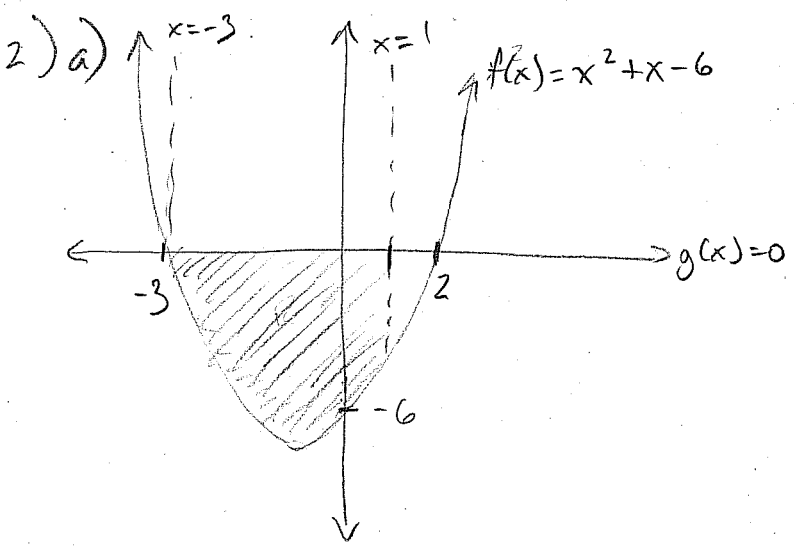
PRACTICE PROBLEMS 2
ANSWERS

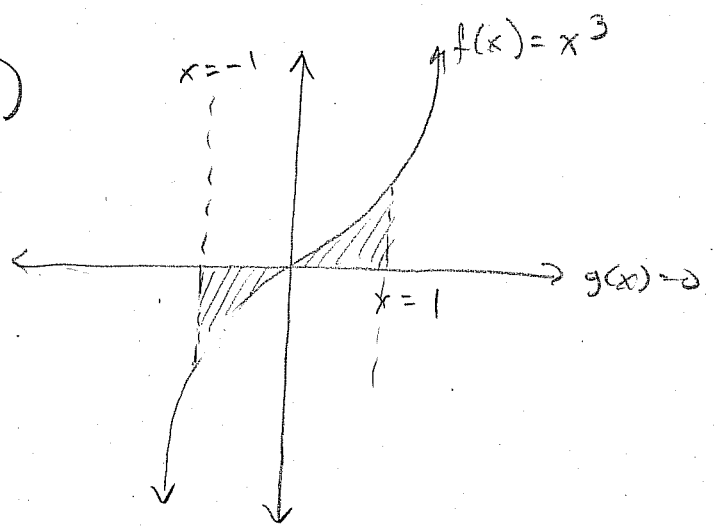
1) a) 0 b) 4 c) $e^4 - 1$

2) a)



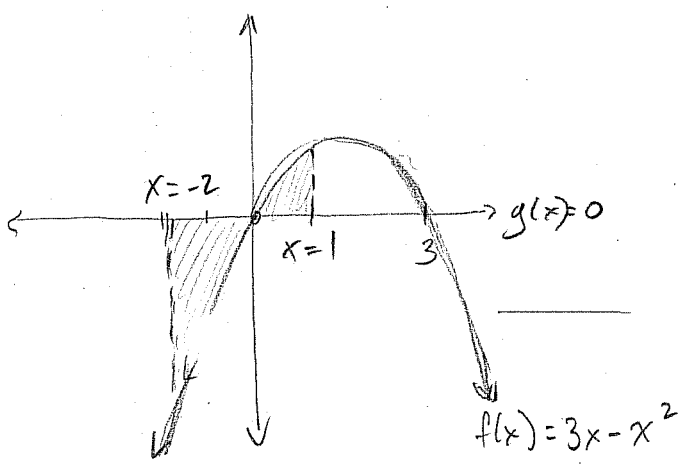
AREA = $\frac{20}{3}$ units²

b)



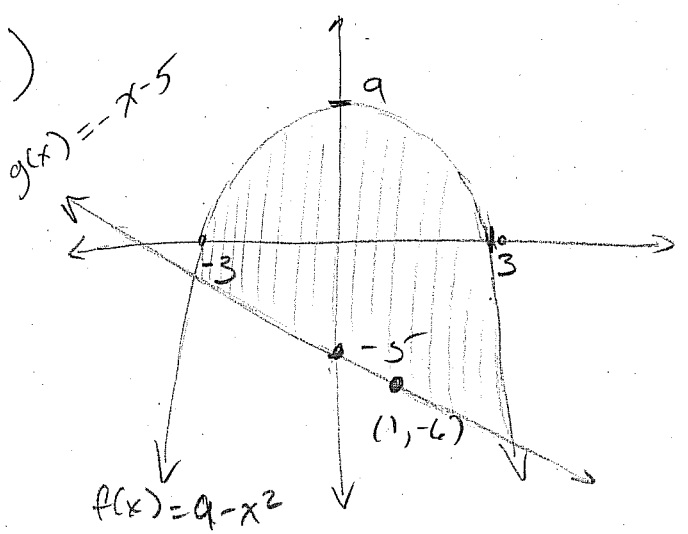
AREA = $\frac{1}{2}$ units²

c)



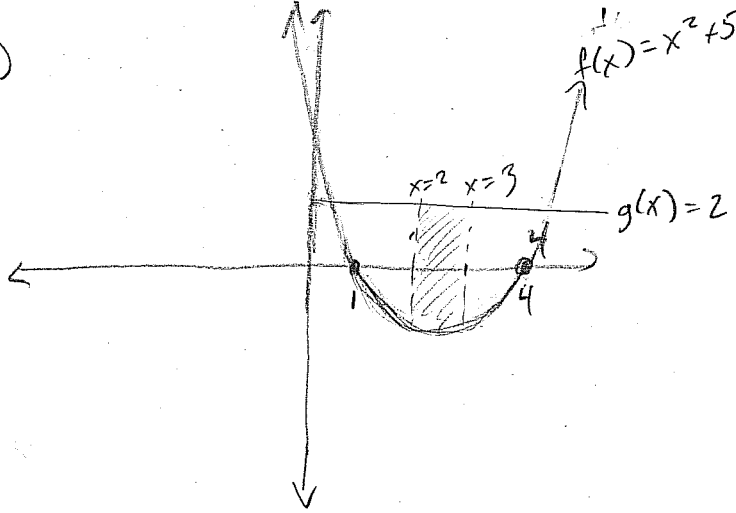
AREA = $\frac{37}{3}$ units²

d)



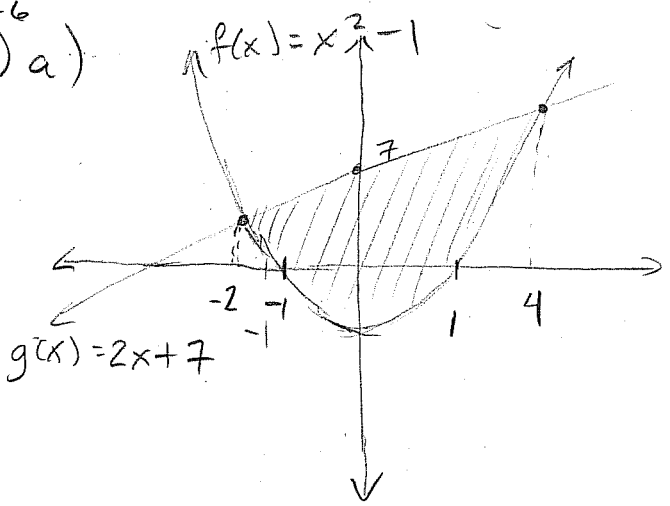
AREA = $\frac{15}{2}$ units²

e)



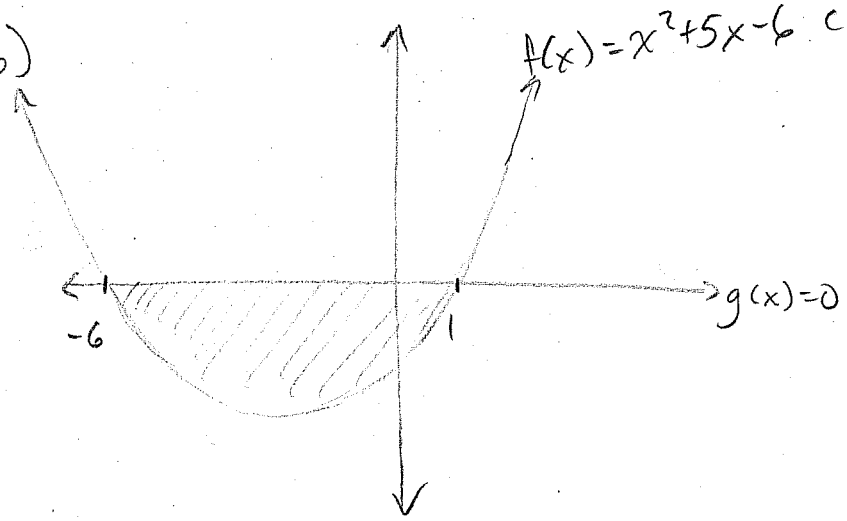
AREA = $\frac{25}{6}$ units²

3) a)



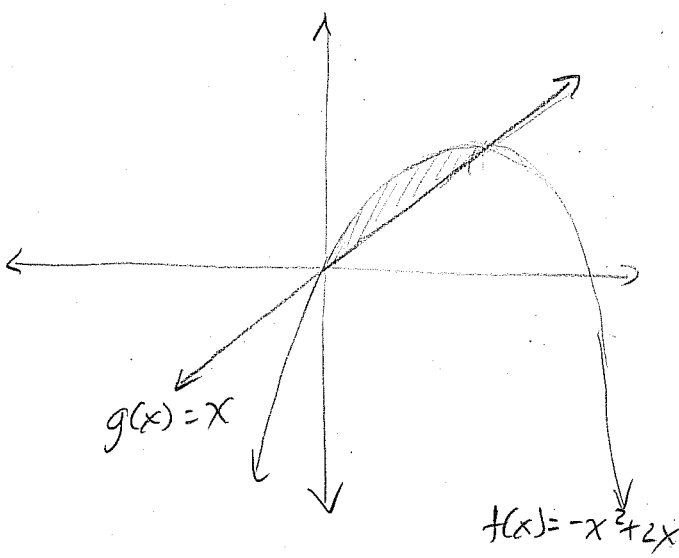
AREA = 36 units²

b)



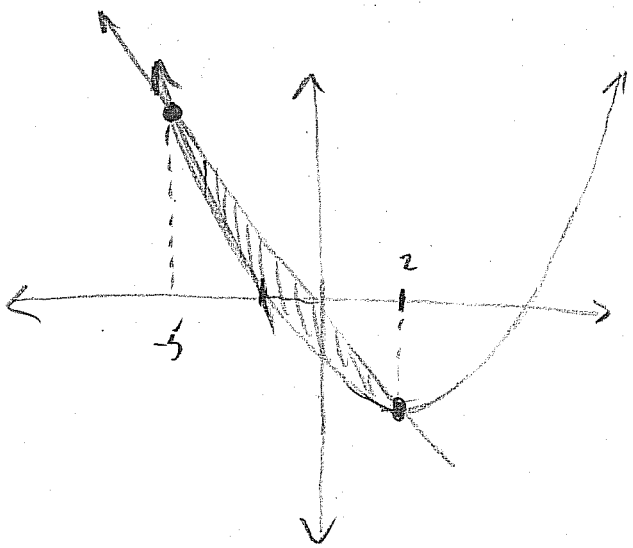
AREA = $\frac{343}{6}$ units²

c)



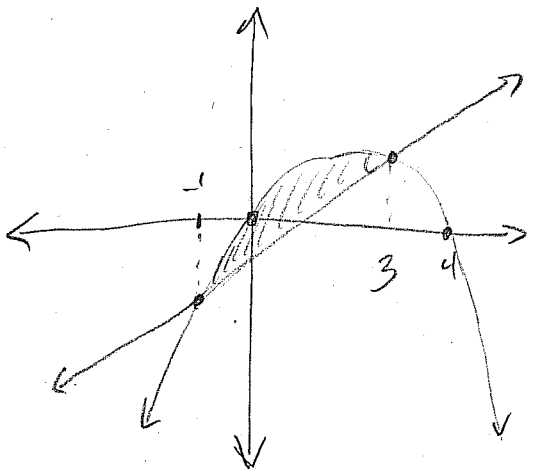
AREA = $\frac{1}{6}$ units²

d)



AREA = 120 units²

e)



AREA = $\frac{32}{3}$ units²

4) 1) $\vec{x} = 10$, $CS \approx \$11.667$ 2) $\vec{x} = 10$ $CS \approx \$16\,667$

3) $\vec{x} = 25$, $CS \approx \$6\,667$ 4) $\vec{x} = 25$, $PS \approx \$3500$

5) $\bar{x} = 10$, $\bar{p} = 5$, $PS \approx \$11\,667$

6) $\vec{x} = 8$, $\bar{p} = 80$, $CS \approx \$41.333$, $PS \approx \$170\,667$

7) $\bar{x} = 10$, $\bar{p} = 60$, $CS \approx \$13\,333$, $PS \approx \$11\,667$

5 a) $-\frac{x}{2}e^{-2x} - \frac{1}{4}e^{-2x} + c$ b) $\frac{7}{4}xe^{4x} - \frac{7}{16}e^{4x} + c$

c) $\frac{1}{2}e^{2x} - 2xe^{x} + 2e^{x} + \frac{1}{3}x^{3} + c$ d) $\frac{x-5}{4}e^{4x} - \frac{1}{16}e^{4x} + c$

e) $x^{2}\ln x^{3} - \frac{3}{2}x^{2} + c$ f) $\frac{2}{5}x^{5/2}\ln\sqrt{x} - \frac{2}{25}x^{5/2} + c$

g) $2\sqrt{x}\ln x - 4\sqrt{x} + c$ h) $\frac{x\sin(\ln x) - x\cos(\ln x)}{2} + c$

i) $e^{x}\sin x + e^{x}\cos x + c$ j) $-3e^{-3} - e^{-3}$

k) $2\ln 2 - \frac{3}{4}$ l) $3\ln 3 - 2$