MATH 102 #3 SOLUTIONS

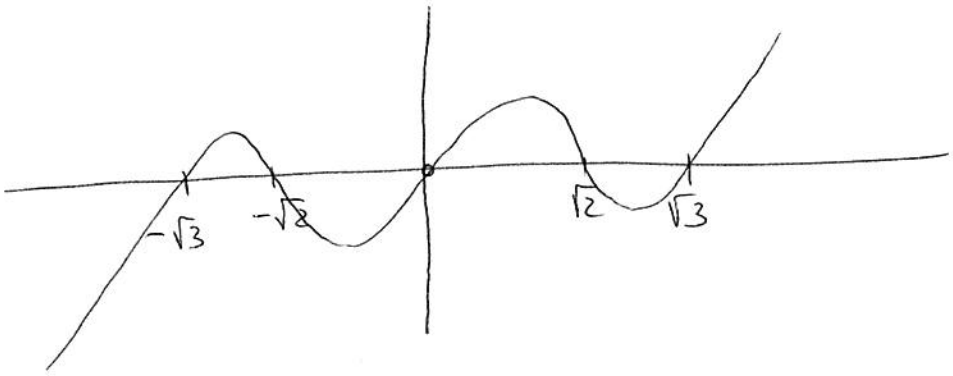
1. FACTOR $f(x) = x(x^4 + x^2 - 6)$

$= x(x^2+3)(x^2-2)$

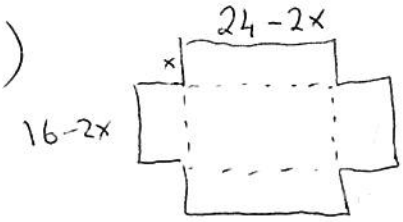
HENCE ROOTS ARE

$x = 0, \quad x = \pm\sqrt{3}, \quad x = \pm\sqrt{2}$

(ALL SINGLE)



2 a)



VOLUME $= w \times l \times h$

$= (24-2x)(16-2x)(x)$

$= 384x - 8x^2 + 4x^3$

b) AREA = BOTTOM + 4 SIDES

$= (24-2x)(16-2x) + 2x(24-2x) + 2x(16-2x)$

$= 384 - 8x + 4x^2 + 48x - 4x^2 + 32x - 4x^2$

$= -4x^2 + 72x + 384$

3 a) $\dfrac{xy^2}{3}$ b) $\dfrac{x^2+x+2}{x^2-1}$