
Follow all directions. This assignment is to be completed in pencil and with all work shown in the space provided. Unless otherwise specified, give exact answers. Box your final answer. Work that is unreadable will be counted as incorrect.

1. Factor each expression.

(a) $-6g^5 + 12g^4 - 9g^3$

(b) $2a(a + 2) + 3(a + 2)$

(c) $4k^3 + 6k^2 - 2k - 3$

(d) $x^2 + 12 + 13x$

(e) $10u^2 - 19u - 15$

(f) $v^4 - 1$

(g) $4m^2 - 20m + 25$

2. Volume of a Box

The volume of a rectangular box x inches in height is given by the relationship $V = x^3 + 8x^2 + 15x$. Factor the right hand side to determine:

(a) the dimensions of the box.

(b) Find the volume of the box given that the height is 2ft.

3. **Challenge Question!** Factor out a constant that leaves integer coefficients for each term:

$$\frac{1}{2}x^4 + \frac{1}{8}x^3 - \frac{3}{4}x^2 + 4$$

Hint: Find a common denominator for all of the fractions!