

ANSWERS

	Max# of solutions	Min# of solutions
1a)	5	1
1b)	4	0
1c)	3	1
1d)	6	0

- 2a) yes
 2b) no, $\sqrt{-4}$ is an imaginary coefficient
 2c) yes
 2d) yes
 2e) no, power not a whole number

- 4a) $x = -2$
 4b) $x = 1$
 4c) $x = -5 \pm 2\sqrt{2}$ or $x = -2.62, x = -7.38$

- 6a) $x = 4, x = -\frac{2}{3}, x = \frac{1}{2}$
 6b) $x = -3, x = -2, x = 1$
 6c) $x = 0, x = -1, x = 2, x = 3$
 6d) $x = -1, x = 5, x = \pm\sqrt{3}$

- 8a) $y = x^3 - 3x^2 - 24x + 80$
 8b) $y = x^4 - 5x^2 + 6$
 8c) $y = 2(x^5 - 9x^4 + 26x^3 - 18x^2 - 27x + 27)$

- 9) The dimensions of the box are:
 1cm by 6cm by 8cm or
 2cm by 4cm by 6cm

- 10a) $V(x) = (10-x)(8-x)(5-x)$
 10b) The carver would have to remove 2 cm off each dimension
 10c) Check solutions for graph

- 11a) $V(x) = (6+x)(10+2x)(4-x)$
 11b) Jon would have to remove 1.5 feet off the height, add 1.5 to the width, and add 3 feet to the length

- 12) $945 = (x)(x+2)(x+4)(x+6)$
 The integers would be 3, 5, 7 and 9 or -9, -7, -5, -3

- 13) $90 = \left(\frac{x(x-2)}{2}\right)(2x+2)$
 The height of the triangular prism would be 12 units

- 3a) $x = 6, x = -3, x = 2$
 3b) $x = 0, x = -\frac{1}{6}, x = \frac{3}{2}$
 3c) $x = 0, x = -1, x = 1$

- 5a) $x = 4$
 5b) $x = 3, x = 1$

- 7a) $x = 2$
 7b) $x = -\frac{1}{2}, x = \frac{3 \pm \sqrt{29}}{2}$
 7c) $x = -2, x = 2, x = \frac{3 \pm \sqrt{57}}{4}$
 7d) $x = 0, x = 3 \pm \sqrt{3}$