Hw 2 m166 sp14

(#58) $x^2 + 16 = -5x$

General form: $x^2 + 5x + 16 = 0$

$a = 1$
$b = 5$
$c = 16$

$b^2 - 4ac = 25 - 4(1)(16) < 0$

$= 25 - 64$

$= -39$

$a + bi$

$$x = \frac{-(5) \pm \sqrt{(-39)}}{2(1)}$$

$$\frac{-5 + i\sqrt{39}}{2} = \frac{-5}{2} + i\frac{\sqrt{39}}{2}$$

$$\frac{-5 - i\sqrt{39}}{2} = \frac{-5}{2} - i\frac{\sqrt{39}}{2}$$

(#68) $a^2x^2 - b^2 = 0 \quad a \neq 0$

$x^2 - \frac{b^2}{a^2} = 0 \quad \therefore \sqrt{x^2} = \sqrt{\frac{b^2}{a^2}}$

$|x| = \left|\frac{b}{a}\right|$

$x = \pm \frac{b}{a}$

$\sqrt{(5^2 - 4^2)} =$

$5 - 4 = 1$

(∴ C)

$\sqrt{a^2x^2 - b^2} = \sqrt{0}$

$ax - b = 0$

$x = \frac{b}{a}$

$a^2x^2 + 0x - b^2 = 0$

$a^2x^2 - b^2 = 0$

$(ax)^2 - b^2 = 0$

$A^2 - B^2 = (A+B)(A-B)$

$A = a^2$
$B = 0$
$C = -b^2$

$\frac{-(0) \pm \sqrt{0 - 4(a^2)(-b^2)}}{2(a^2)}$

$0 - 4(a^2)(-b^2) = 4a^2b^2$

$(ax+b)(ax-b) = 0$

$ax + b = 0$ or $ax - b = 0$

$ax = -b$ $\quad ax = b$

$\boxed{x = -\frac{b}{a}}$ $\quad \boxed{x = \frac{b}{a}}$

$\frac{\pm 2|ab|}{2a^2} = \pm \frac{ab}{a^2}$

$= \boxed{\pm \frac{b}{a}}$

#84

$S = x^2 + 4xh$.

$576 = x^2 + 4x(4)$.

$576 = x^2 + 16x$

$x^2 + 16x - 576 = 0$.

$x = \frac{-16 \pm \sqrt{256 + 4(576)}}{2}$

$x > 0$

17.3 ✓

~~-33.298~~ ?

"$x = 17.3$ feet"

#86

Volume of Box.

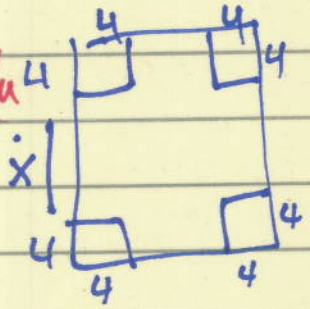
$l \; w \; h = V = V_{box} + V_{4}$

$x \times 4 = 576$

$4x^2 = 576$.

$x^2 = 144$

$x = 12$



Square.

$x + 8 =$ 20 cm