

Mixed Review

1 a. $A = lw$
 $A = w(w+5)$

$A = w^2 + 5w$

b. $150 = w^2 + 5w$

$0 = w^2 + 5w - 150$ -150
 $0 = w^2 + 15w - 10w - 150$ -10

$0 = w(w+15) - 10(w+15)$

$0 = (w-10)(w+15)$

$w-10=0$ $w+15=0$

$w=10, -15$

$10 \text{ ft} \times 15 \text{ ft}$

2 a. $V = (x+9)(x-4)x$

$V = (x^2 + 5x - 36)x$

$V = x^3 + 5x^2 - 36x$

b. $180 = x^3 + 5x^2 - 36x$

$0 = x^3 + 5x^2 - 36x - 180$

$0 = x^2(x+5) - 36(x+5)$

$0 = (x^2 - 36)(x+5)$

$0 = (x-6)(x+6)(x+5)$

$x-6=0$ $x+6=0$ $x+5=0$

$x=6, -6, -5$

$15 \text{ in} \times 6 \text{ in} \times 2 \text{ in}$

3 $l = (x-4)$ $w = (x-4)$

a. $A = (x-4)(x-4)$

$A = x^2 - 8x + 16$

b. $100 = x^2 - 8x + 16$ -84

$0 = x^2 - 8x - 84$ -14

$0 = x^2 - 14x + 6x - 84$

$0 = x(x-14) + 6(x-14)$

$0 = (x+6)(x-14)$

$x+6=0$ $x-14=0$

$x=14, -6$

Original: $14 \times 14 = 196 \text{ in}^2$

4 A ball is kicked from the ground with an initial velocity of 48 ft/sec.

$0 = -16t^2 + 48t$

$0 = -16t(t-3)$

$t = 3 \text{ secs}$

5 a. $h = -16t^2 + 80t + 3$

b. $99 = -16t^2 + 80t + 3$

$0 = -16t^2 + 80t - 96$

$0 = -8(2t^2 - 10t + 12)$ -8

$0 = -8(2t^2 - 6t - 4t + 12)$ -8

$0 = 2t^2 - 6t - 4t + 12$

$0 = 2t(t-3) - 4(t-3)$

$0 = (2t-4)(t-3)$

$t = 2 \text{ secs}, 3 \text{ secs}$

c. Yes

6



b. $V = (n+25)(n-1)h$

$= (h^2 + 24h - 25)h$

$V = h^3 + 24h^2 - 25h$

c. $600 = h^3 + 24h^2 - 25h$

$0 = h^3 + 24h^2 - 25h - 600$

$0 = h^2(h+24) - 25(h+24)$

$0 = (h^2 - 25)(h+24)$

$0 = (h-5)(h+5)(h+24)$

$h-5=0$ $h+5=0$ $h+24=0$

$h=5, -5, -24$

$A = lW$

$A = (30)(4) = 120 \text{ in}^2$

7) No you are not given
the initial height.

8) ~~max height~~

$$h = -16t^2 + 144$$

$$h = -1(16t^2 - 144)$$

$$\text{set } 0 = (4t - 12)(4t + 12)$$

$$t = 3, \text{ } \cancel{9} \quad \boxed{3 \text{ secs}}$$

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