Section 9.2 Extra Practice - Answer Key

1. Answers will vary. The following are examples of correct responses, not the only correct responses.

a) $x \leq -4$ x could be $-10, -47, -4$, etc.

b) $x > 3$ x could be $4, 11, 33$, etc.

c) $x \geq -2$ and $x \leq 5$ x could be $-2, 5, 0, 1$, etc.

2. a) $x + 5 \leq 12$
$-5 \quad -5$
$x \leq 7$

b) $2 > x - 9$
$+9 \quad +9$
$11 > x$

c) $7.4 + x \geq 6.2$
$-7.4 \quad -7.4$
$x \geq -1.2$

d) $x - 4.2 < 3.5$
$+4.2 \quad +4.2$
$x < 7.7$

e) $\frac{4x}{4} \leq \frac{-16}{4}$
$x \leq -4$

f) $\frac{-1.3x}{-1.3} > \frac{16.9}{-1.3}$
$x < -13$

g) $5\left(\frac{x}{5}\right) \leq (-4)(5)$
$x \leq -20$

h) $-4\left(-\frac{1}{4}x\right) \geq (3)(-4)$
$x \leq -12$

3. a) $2x < -10$; $x > -5$

boundary: $2x = -10$
$2(-5) = -10$
$-10 = -10$ ✓

shading: Use $x = 0$ because $0 > -5$
$2(0) < -10$
$0 < -10$
not true ∴ $x > -5$ is not correct

b) $-3x \leq -24$; $x \leq 8$

boundary: $-3x = -24$
$-3(8) = -24$
$-24 = -24$ ✓

shading: Use $x = 1$ because $1 \leq 8$
$-3(1) \leq -24$
$-3 \leq -24$
not true. ∴ $x \leq 8$ is not the correct solution

c) $-9 \geq -\frac{1}{3}x$; $3 \geq x$

boundary: $-9 = -\frac{1}{3}x$
$-9 = -\frac{1}{3}(3)$
$-9 \neq -1$
The boundary point is wrong
∴ $3 \geq x$ is not the correct solution

d) $x + 8 < -12$; $x < 20$

boundary: $x + 8 = -12$
$20 + 8 = -12$
$28 \neq -12$ The boundary point is wrong
∴ $x < 20$ is not the correct solution.

e) $2x \geq -16$; $x \geq -8$

boundary: $2x = -16$
$2(-8) = -16$
$-16 = -16$ ✓

shading: Use $x = 1$ because $1 \geq -8$
$2(1) \geq -16$
$2 \geq -16$
true ∴ $x \geq -8$ is the correct solution

Hilroy

f) $-7+x > -2$; $x > -9$

boundary: $-7+x = -2$

$-7+(-9) = -2$

$-16 \neq -2$ The boundary point is wrong.

∴ $x > -9$ is not the correct solution.

4. a) Let b = total number of balloons

15% of the balloons are red $\Rightarrow 0.15b$ = red

At least 18 are red $\Rightarrow 18 \leq$ red

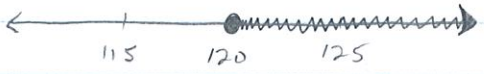
Inequality : $18 \leq 0.15b$

b) $\frac{18}{0.15} \leq \frac{0.15b}{0.15}$

$120 \leq b$

c) There are 120 or more balloons in the package

at least 120



5. a) Area = $L \times W = 5(x+2)$

Area $\leq$ 25 sq. units

} Inequality : $\frac{5(x+2)}{5} \leq \frac{25}{5}$

$x + 2 \leq 5$

$-2 \quad -2$

$x \leq 3$

b) Yes. The value of x can't be -2 or smaller (ie: $x > -2$)

because numbers that small would make one side a negative value and that is not valid as the length for a rectangle.