## Lessons 6.4–6.6

**MULTIPLE CHOICE**

1. **BUSINESS** A manager at a clothing store is determining the retail prices of items so that they can be tagged and placed on the sales floor. The equation that the manager uses is $R = C + MC$ where $R$ is the retail price, $C$ is the cost that the store pays for the item, and $M$ is the percent (expressed as a decimal) that the item is marked up. The markup for women's sweaters is 40%. What is the inverse of the function that gives the retail price of women's sweaters? *TEKS 2A.4.C*



Ⓐ $C = \dfrac{R}{1.4}$  Ⓑ $C = \dfrac{R}{0.6}$

Ⓒ $C = 1.4R$  Ⓓ $C = 0.6R$

2. **RADICAL EQUATIONS** What is the solution of the equation $\sqrt{3x - 5} = 4$? *TEKS 2A.9.D*

Ⓕ 4  Ⓖ 5

Ⓗ 7  Ⓙ 10

3. **MONETARY EXCHANGE** On a certain day, the function that gives Swedish kronor in terms of U.S. dollars is $k = 0.134d$ where $k$ represents kronor and $d$ represents U.S. dollars. How many dollars do you receive for 25 kronor? *TEKS 2A.4.C*

Ⓐ $3.35  Ⓑ $21.65

Ⓒ $28.35  Ⓓ $186.57

4. **RADICAL FUNCTIONS** Which radical function has a domain of $x \geq 4$? *TEKS 2A.9.C*

Ⓕ $y = -5\sqrt{x + 4}$  Ⓖ $y = -\sqrt{x} - 4$

Ⓗ $y = 4\sqrt{x}$  Ⓙ $y = 2\sqrt{x - 4} + 8$

5. **VERTICAL MOTION** An object is launched upward from ground level and reaches a maximum height of $h$ feet. The initial velocity $v$ (in feet per second) of the object is given by the function $v = 8\sqrt{h}$. What is the approximate maximum height of an object that is launched upward with an initial velocity of 110 feet per second? *TEKS 2A.4.C*

Ⓐ 83.9 feet  Ⓑ 156.3 feet

Ⓒ 189.1 feet  Ⓓ 311.1 feet

**GRIDDED ANSWER** ⓪①●③④⑤⑥⑦⑧⑨

6. **WEATHER BALLOONS** Your friend releases a weather balloon 50 feet from you. When the balloon is at height $h$, the distance $d$ between you and the balloon is given by

$$d = \sqrt{2500 + h^2}$$

where $h$ and $d$ are measured in feet. To the nearest foot, what is the height of the balloon when the distance between you and the balloon is 100 feet? *TEKS 2A.9.D*



50 ft     Not drawn to scale
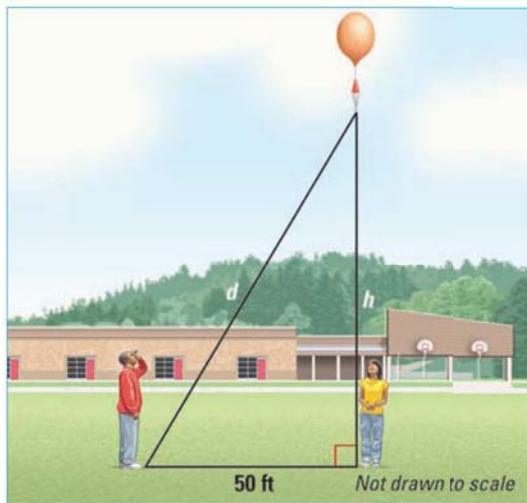
7. **CONCENTRIC CIRCLES** You drop a pebble into a calm pond, causing ripples of concentric circles. The radius $r$ (in feet) of the outer ripple is given by $r(t) = 6t$ where $t$ is the time (in seconds) after the pebble hits the water. The area $A$ (in square feet) of the outer ripple is given by $A(r) = \pi r^2$. To the nearest square foot, what is $A(r(2))$? Use 3.14 for $\pi$. *TEKS 2A.2.A*