## Lessons 10.5–10.8

MULTIPLE CHOICE

1. **SPRINGS** Different masses (in kilograms) are hung from a spring. The distances (in centimeters) that the spring stretches are shown in the table.

Mass (kilograms)	Distance (centimeters)
1	2.6
2	5.2
3	7.8
4	10.4
5	13.0

Which type of function can be used to model the data? *TEKS A.2.D*

Ⓐ A linear function

Ⓑ An exponential function

Ⓒ A quadratic function

Ⓓ Not here

2. **CHEERLEADING** A cheerleading routine involves throwing a flyer straight up into the air and catching her on the way down. The flyer begins this stunt with her center of gravity 4.5 feet above the ground, and she is thrown with an initial vertical velocity of 30 feet per second. How many seconds after she is thrown will the cheerleader's center of gravity be 15 feet high? *TEKS A.10.A*

Ⓕ After about 0.5 second

Ⓖ After about 1.2 seconds

Ⓗ After about 0.5 second and 1.4 seconds

Ⓙ After about 0.1 second and 1.8 seconds

3. **WHAT IF?** In Exercise 2, suppose the flyer wants to have her center of gravity reach a height of 25 feet above the ground at its peak. Which initial vertical velocity will accomplish this? *TEKS A.10.A*

Ⓐ 18.1 ft/sec   Ⓑ 36.2 ft/sec

Ⓒ 42.2 ft/sec   Ⓓ 50 ft/sec

4. **MOSAIC** You are making a tiled tabletop with a uniform mosaic tile border as shown.
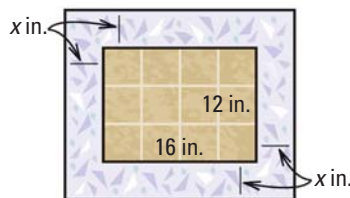
You have enough mosaic tiles to cover 130 square inches. To the nearest inch, what should the width of the border be? *TEKS A.10.A*

Ⓕ 2 in.   Ⓖ 4 in.

Ⓗ 8 in.   Ⓙ 11 in.

5. **SOFTBALL** In slow-pitch softball, the ball is pitched in an underhand motion. A batter in a softball game is pitched a ball whose height h (in feet) can be modeled by $h = -16t^2 + 35t + 2$ where t is the time (in seconds) since the ball was pitched. The batter hits the ball when it is 2.5 feet above the ground. About how long after the ball is pitched is the ball hit? *TEKS A.4.A*

Ⓐ 0.5 sec   Ⓑ 1.1 sec

Ⓒ 2.2 sec   Ⓓ Not here

GRIDDED ANSWER ⓪①●③④⑤⑥⑦⑧⑨

6. **TRAPEZOID** The trapezoid shown has an area of 54 square inches. What is the value of x? *TEKS A.10.A*
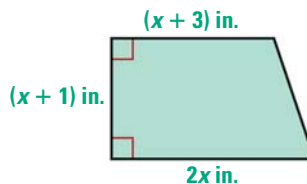
7. **BUSINESS** For the period 1990–2000, the sales y (in billions of dollars) of computers, computer accessories, and computer software can be modeled by the function $y = -0.05x^2 + 2.2x + 7$ where x is the number of years since 1990. In which year during the period 1990–2000 did the sales reach $24 billion? *TEKS A.10.A*