Lessons 4.1–4.5
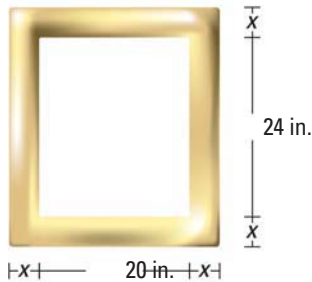
MULTIPLE CHOICE

1. **CRAFTS** You are creating a metal border of uniform width for a rectangular wall mirror that is 20 inches by 24 inches. You have 416 square inches of metal to use. What is the greatest possible width x of the border? *TEKS 2A.8.D*

24 in.

$\vdash x \vdash$ —— 20 in. $\vdash x \vdash$

   (A) 2 inches   (B) 4 inches
   (C) 16 inches   (D) 26 inches

2. **PHYSICAL SCIENCE** A pinecone falls from a tree branch that is 20 feet above the ground. About how many seconds does it take for the pinecone to hit the ground? *TEKS 2A.8.D*

   (F) 0.80 second

   (G) 0.89 second

   (H) 1.12 seconds

   (J) 1.25 seconds

3. **FIREFIGHTING** Some harbor police departments have firefighting boats with water cannons. The boats are used to fight fires that occur within the harbor. The function $y = -0.0035x(x - 143.9)$ models the path of water shot by a water cannon where x is the horizontal distance (in feet) and y is the corresponding height (in feet). How far does the water cannon shoot? *TEKS 2A.8.A*

   (A) 12.0 feet

   (B) 71.9 feet

   (C) 143.9 feet

   (D) 287.8 feet

4. **COMPUTERS** The diagonal of the screen on a laptop computer measures 15 inches. The ratio of the screen's width w to its height h is $4:3$. What is the height of the laptop screen? *TEKS 2A.8.A*
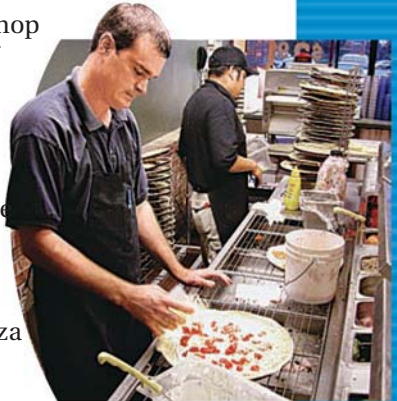
   (F) 3 inches   (G) 9 inches

   (H) 12 inches   (J) 81 inches

5. **QUADRATIC FUNCTION** Which function's graph has a vertex of $(-3, 2)$? *TEKS 2A.6.B*

   (A) $y = -3x^2 - 18x - 25$

   (B) $y = -\frac{1}{2}x^2 + 2x + 5$

   (C) $y = x^2 + x - 6$

   (D) $y = x^2 - 4x - 25$

GRIDDED ANSWER ⓪●②③④⑤⑥⑦⑧ 9

6. **PIZZA SHOP** A pizza shop sells about 80 slices of pizza each day during lunch when it charges $2 per slice. For each $.25 increase in price, about 5 fewer slices are sold each day during lunch. How much should the pizza shop charge per slice of pizza to maximize revenue? *TEKS 2A.8.A*

7. **VEGETABLE GARDEN** You have a rectangular vegetable garden that measures 42 feet by 8 feet. You want to double the area of the garden by expanding the length and width as shown. What is the value of x? *TEKS 2A.8.D*

x 42 ft

8 ft

x