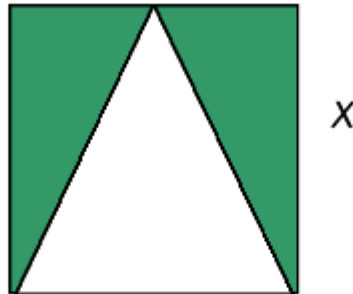




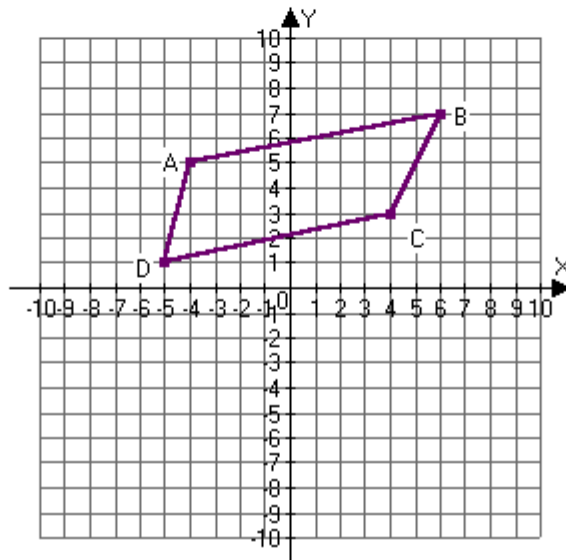
31. Below is a diagram of a triangle inscribed in a square. Which of the following expressions represents the area of the shaded portion?

- A. $A = x^2 - \frac{x}{2}$
- B. $A = 2x^2 - x^2$
- C. $A = \frac{x^2}{2}$
- D. $A = x^2 - 2x$



32. The graph shows the quadrilateral $ABCD$ with vertex points $A(-4, 5)$, $B(6, 7)$, $C(4, 3)$, and $D(-5, 1)$. What is the midpoint of diagonal AC ?

- A. $(0, 4)$
- B. $\left(\frac{1}{2}, 4\right)$
- C. $\left(4, \frac{1}{2}\right)$
- D. $(4, 0)$

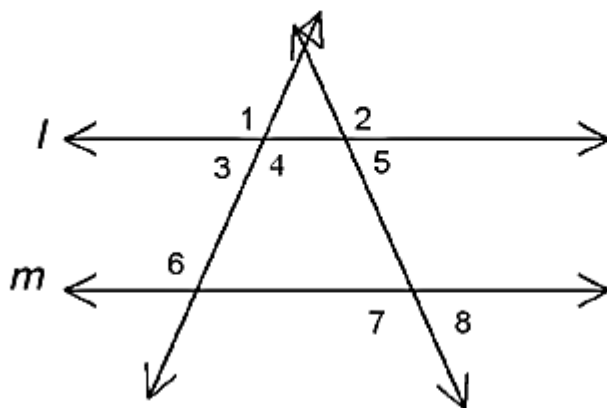


33. Find the maximum of the graph of $y = -(x^2 + x - 12)$.

- A. (-4, 0)
- B. $(-\frac{1}{2}, 12\frac{1}{4})$
- C. (-1, 12)
- D. (0, 12)

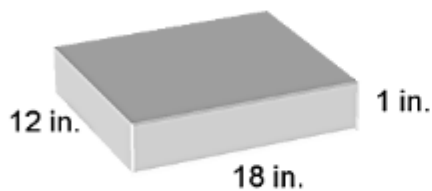
34. In the figure shown below, line l and line m are parallel to each other. Which of the following angles has the same measure as angle 1?

- A. 4 and 6
- B. 2, 4, and 7
- C. only 6
- D. 4, 5, and 8

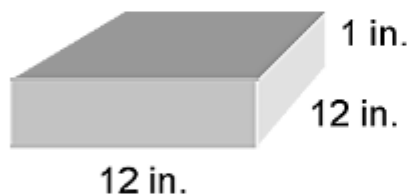


35. From the four types of boxes shown, you must choose a type of box to hold exactly one dozen blocks of cheese. Each cheese block is a rectangular solid with dimensions 1 inch by 2 inches by 6 inches. The measurements shown for each type of box are its interior dimensions. Which type of box must you choose to minimize the amount of unfilled space left inside the box after it has been packed with cheese blocks?

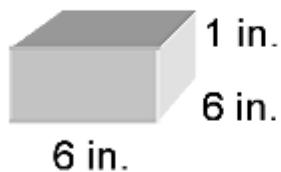
A.



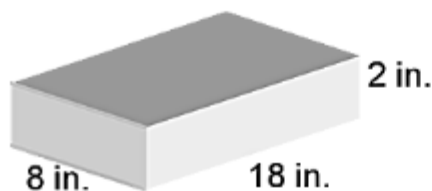
B.



C.



D.

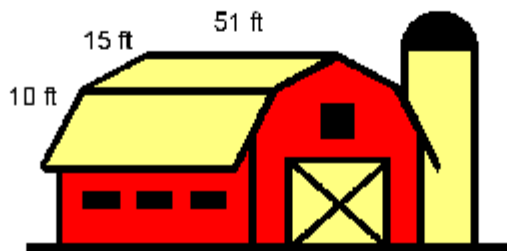


36. The number of feet that a car travels before stopping depends on the driver's reaction time and the braking distance. For a particular driver, the stopping distance is given by the polynomial function $g(x) = 0.04x^2 + 0.9x$, where x is the velocity of the car. Find the stopping distance when the driver is traveling at 25 miles per hour.

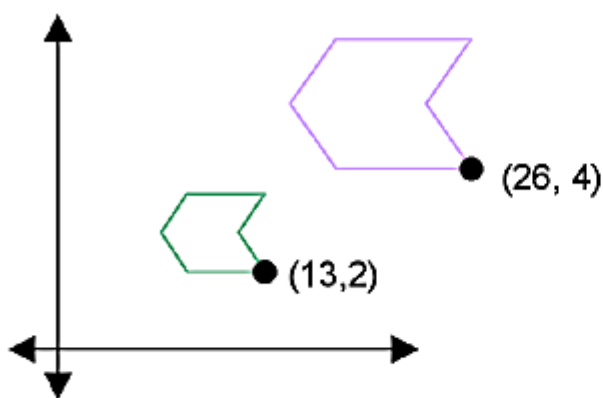
- A. 23.5 feet
- B. 42.5 feet
- C. 47.5 feet
- D. 50 feet

37. J & R Roofing has a contract to roof the barn shown below. One bundle of shingles covers $33 \frac{1}{3}$ square feet. Three bundles make a square. When preparing your order you are including 10% waste in order to make sure you have enough shingles. How many squares of roof shingles will need to be ordered?

- A. 14 squares
- B. 15 squares
- C. 28 squares
- D. 29 squares

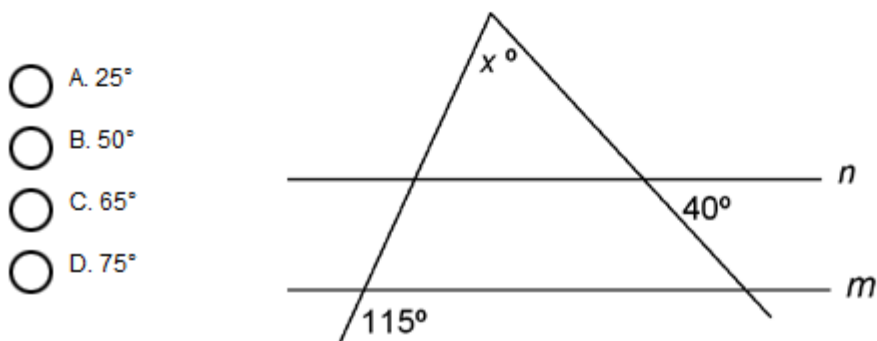


38. The green figure represents the pre-image of a dilation, and the purple figure represents the image. What is the correct scale factor?



- A. $\frac{1}{4}$
- B. $\frac{1}{2}$
- C. 2
- D. 4

39. In the figure below, m is parallel to n . What is the value of x ?



- A. 25°
- B. 50°
- C. 65°
- D. 75°

40. On a map of the state of Virginia, one inch is equivalent to 25 miles

(1 inch = 25 miles). If the distance between two towns is $2\frac{1}{4}$ inches,

what is the actual distance between the towns?

- A. 0.09 miles
- B. 11.11 miles
- C. 56.25 miles
- D. 562.5 miles

Answer Key for problems 31-40

31	C
32	A
33	B
34	A
35	B
36	C
37	D
38	C
39	D
40	C