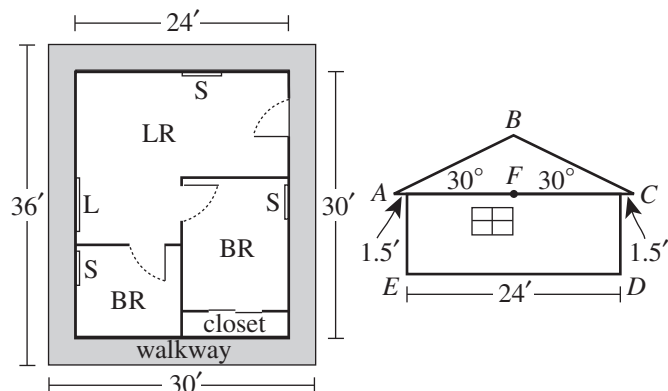




Use the following information to answer questions 35–37.

The Smith family is planning to build a 3-room cabin which consists of 2 bedrooms (BR) and 1 living room (LR). Shown below are the rectangular floor plan (left figure) and a side view of the cabin (right figure). In the side view, the roof forms an isosceles triangle ( $\triangle ABC$ ), the walls are perpendicular to the level floor ( $\overline{ED}$ ),  $\overline{AC} \parallel \overline{ED}$ ,  $F$  is the midpoint of  $\overline{AC}$ , and  $\overline{BF} \perp \overline{AC}$ .



During the week the Smiths plan to roof the cabin, there is a 20% chance of rain each day.

35. Mr. Smith plans to build a 3-foot-wide walkway around the outside of the cabin, as shown in the floor plan. What will be the area, in square feet, of the top surface of the walkway?

A. 171  
B. 324  
C. 360  
D. 396  
E. 720

36. Mrs. Smith will install a ceiling fan in each room of the cabin and will place curtains over the 4 windows. Each of the ceiling fans has a price of \$52.00. The price of curtains for each small window (S) is \$39.50, and the price of curtains for the large window (L) is twice that for the small window. Based on this information, which of the following values is closest to the total price Mrs. Smith will pay for curtains and ceiling fans?

F. \$262  
G. \$302  
H. \$341  
J. \$354  
K. \$393

37. Mr. and Mrs. Smith plan to roof the cabin on 2 consecutive days. Assuming that the chance of rain is independent of the day, what is the probability that it will rain both days?

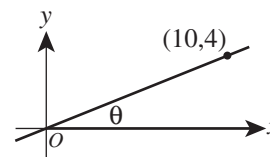
A. 0.04  
B. 0.08  
C. 0.16  
D. 0.20  
E. 0.40

38. Which of the following expressions, when evaluated, equals an irrational number?

F.  $\frac{\sqrt{2}}{\sqrt{8}}$   
G.  $\frac{\sqrt{8}}{\sqrt{2}}$   
H.  $(\sqrt{8})^2$   
J.  $\sqrt{2} \times \sqrt{8}$   
K.  $\sqrt{2} + \sqrt{8}$

39. A line through the origin and (10,4) is shown in the standard ( $x,y$ ) coordinate plane below. The acute angle between the line and the positive  $x$ -axis has measure  $\theta$ . What is the value of  $\tan \theta$ ?

A.  $\frac{\sqrt{29}}{2}$   
B.  $\frac{2}{\sqrt{29}}$   
C.  $\frac{5}{\sqrt{29}}$   
D.  $\frac{2}{5}$   
E.  $\frac{5}{2}$



40. The equation  $|2x - 8| + 3 = 5$  has 2 solutions. Those solutions are equal to the solutions to which of the following pairs of equations?

F.  $2x - 5 = 5$   
 $-2x - 5 = -5$   
G.  $2x - 8 = 2$   
 $-2x - 8 = 2$   
H.  $2x - 8 = 8$   
 $-(2x - 8) = 8$   
J.  $2x - 8 = 2$   
 $-(2x - 8) = 8$   
K.  $2x - 8 = 2$   
 $-(2x - 8) = 2$



41. The frequency chart below shows the cumulative number of Ms. Hernandez's science students whose test scores fell within certain score ranges. All test scores are whole numbers.

Score range	Cumulative number of students
65–70	12
65–80	13
65–90	19
65–100	21

How many students have a test score in the interval 71–80 ?

- A. 1  
B. 6  
C. 8  
D. 12  
E. 13
42. The number of decibels,  $d$ , produced by an audio source can be modeled by the equation  $d = 10 \log\left(\frac{I}{K}\right)$ , where  $I$  is the sound intensity of the audio source and  $K$  is a constant. How many decibels are produced by an audio source whose sound intensity is 1,000 times the value of  $K$  ?
- F. 4  
G. 30  
H. 40  
J. 100  
K. 10,000
43. Mario plays basketball on a town league team. The table below gives Mario's scoring statistics for last season. How many points did Mario score playing basketball last season?

Type of shot	Number attempted	Percent successful
1-point free throw	80	75%
2-point field goal	60	90%
3-point field goal	60	25%

- A. 129  
B. 190  
C. 213  
D. 330  
E. 380

44. The graph of  $y = |x - 6|$  is in the standard  $(x, y)$  coordinate plane. Which of the following transformations, when applied to the graph of  $y = |x|$ , results in the graph of  $y = |x - 6|$  ?

- F. Translation to the right 6 coordinate units  
G. Translation to the left 6 coordinate units  
H. Translation up 6 coordinate units  
J. Translation down 6 coordinate units  
K. Reflection across the line  $x = 6$

45. Toby wants to find the volume of a solid toy soldier. He fills a rectangular container 8 cm long, 6 cm wide, and 10 cm high with water to a depth of 4 cm. Toby totally submerges the toy soldier in the water. The height of the water with the submerged toy soldier is 6.6 cm. Which of the following is closest to the volume, in cubic centimeters, of the toy soldier?

- A. 125  
B. 156  
C. 192  
D. 208  
E. 317

46. A box in the shape of a cube has an interior side length of 18 inches and is used to ship a right circular cylinder with a radius of 6 inches and a height of 12 inches. The interior of the box not occupied by the cylinder is filled with packing material. Which of the following numerical expressions gives the number of cubic inches of the box filled with packing material?

- F.  $6(18)^2 - 2\pi(6)(12) - 2\pi(6)^2$   
G.  $6(18)^2 - 2\pi(6)(12)$   
H.  $18^3 - \pi(6)(12)^2$   
J.  $18^3 - \pi(6)^2(12)$   
K.  $18^3 - \pi(12)^3$

47. A room has a rectangular floor that is 15 feet by 21 feet. What is the area of the floor in square yards ?

- A. 24  
B. 35  
C. 36  
D. 105  
E. 144