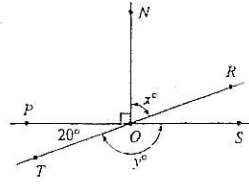
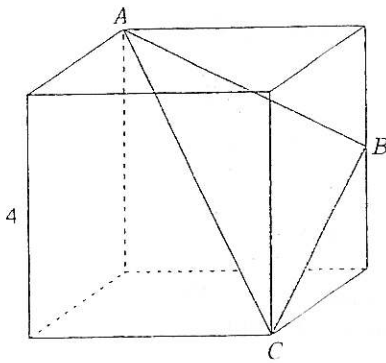
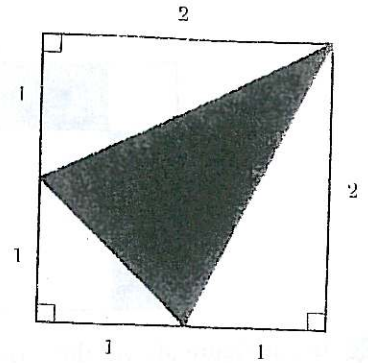


30. The cube in Figure 4 has edges of length 4 cm. If point B is the midpoint of the edge, what is the perimeter of $\triangle ABC$?



4. In the figure above, \overline{PS} and \overline{TR} intersect at O and \overline{ON} is perpendicular to \overline{PS} . What is the value of $y - x$?

35. In Figure 6, what is the area of the shaded region?

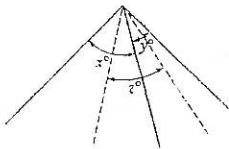


- 45 9. If $\angle A$ is four times $\angle B$, and the complement of $\angle B$ is four times the complement of $\angle A$, then $\angle B =$

6. Suppose ABC is a triangle such that $AB = 13$, $BC = 15$, and $CA = 14$. Say D is the midpoint of \overline{BC} , E is the midpoint of \overline{AD} , F is the midpoint of \overline{BE} , and G is the midpoint of \overline{DF} . Compute the area of triangle EFG .

2. [2] Rectangle $ABCD$ has side lengths $AB = 12$ and $BC = 5$. Let P and Q denote the midpoints of segments AB and DP , respectively. Determine the area of triangle CDQ .

- 98 29. A point (x, y) in the plane is called a *lattice point* if both x and y are integers. The area of the largest square that contains exactly three lattice points in its interior is closest to



Note: Figure not drawn to scale.

3. In the figure above, if $x = 70$ and $y = 40$ and the dotted lines bisect the angles with measures x° and y° , what is the value of z ?

121. If the area of a rectangle is 12, what is its perimeter?

- (A) 7
(B) 8
(C) 14
(D) 16

- (E) It cannot be determined from the information given.

15. X , Y , and Z are points on a line in that order. XY is 20, and YZ is 15 more than XY . What is XZ ?

45. The point $(5, -10)$ is at a distance of 26 from point Q , and the point $(2, -10)$ is at a distance of 25 from Q . Which of the following could be the coordinates of Q ?

- A. $(-5, 14)$ B. $(-3, 18)$ C. $(-1, 19)$ D. $(0, 21)$
E. $(2, 16)$

33. A CIRCLE AND A SQUARE HAVE THE SAME PERIMETER, SO:

- A. Their AREAS ARE EQUAL
B. Area of CIRCLE IS GREATER
C. Area of Square is GREATER
D. Area of CIRCLE IS π TIMES AREA OF SQUARE
E. NONE OF ABOVE