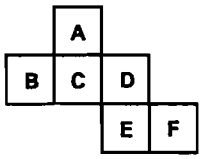
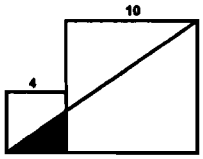
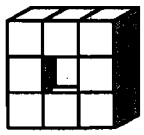
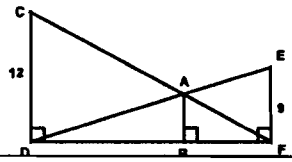
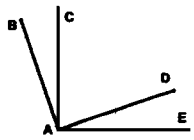
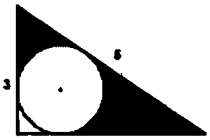
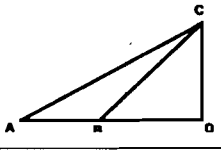
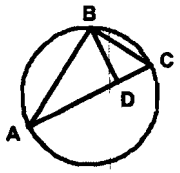
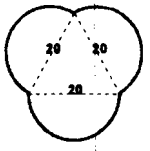
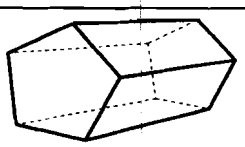
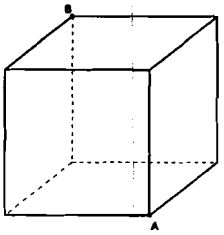
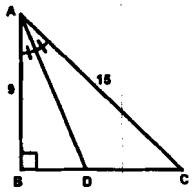
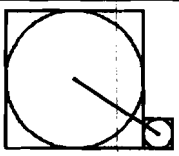
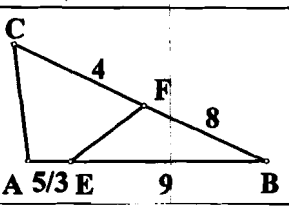
Sample: The figure is a "net" for a cube. The net is folded up to form a cube, and the cube is rolled. If C is on top, what letter is on bottom?
Answer: F



1. What is the radius of a circle inscribed in a triangle with sides 15, 9, and 12?		3
2. Observe the squares in the figure above with side lengths of 4 and 10 units respectively. What is the area of the shaded region?		$\frac{40}{7}$
3. A rhombus has diagonals of lengths 12 and 16 units. What is the perimeter of the rhombus?		40
4. The bases of isosceles trapezoid ABCD are 17 cm and 25 cm and its base angles are 45 degrees. What is the height of the trapezoid?		4
5. The figure is made from 8 unit cubes that are glued together. There is a hole through the middle of the object. How many square units are in the surface area of the entire figure?		32
6. In the figure, CD = 12 & EF = 9. What is the ratio of the area of ΔEFD to ΔABD ?		$\frac{49}{16}$
7. The sides of a triangle are 10, 12, and 14. The length of the shortest altitude is...?		$\frac{24\sqrt{6}}{7}$
8. The $m\angle CAE = m\angle BAD = 90^\circ$. What is $m\angle BAE + m\angle CAD$?		180°
9. Find the area of the shaded region.		$5-\frac{3\pi}{4}$
10. In the figure AC = 5, AB = 2, $m\angle ADC = 90^\circ$, and the area of ΔABC is 3. Find BD.		2

11. In the following figure $\overline{AC}$ is a diameter of the circle, $m\angle ADB = 90^\circ$ and CD = 1. If BD = h, which segment on the figure has length h^2?		$\overline{AD}$
12. Three semi-circles are attached to an equilateral triangle. Find the area of the figure.		$100\sqrt{3}+150\pi$
13. How many surface diagonals can be drawn on a pentagonal prism such as the one depicted?		20
14. The surface area of a cube is 54 feet. How many cubic yards are in its volume?		1
15. Imagine a little ant positioned at Point A. The side lengths of the solid cube are all 1 meter. What is the shortest distance that the ant can travel from A to point B?		$\sqrt{5}$
16. Find the length of segment AD in right triangle ABC.		$\frac{9\sqrt{5}}{2}$
17. A solid cone with radius $\frac{9}{4}$ and height $\frac{9}{2}$ is placed inside a cylinder that also has radius $\frac{9}{4}$ and height $\frac{9}{2}$. How much of the space inside the cylinder is not occupied by the cone?		$\frac{243\pi}{16}$
18. How many square inches are in the surface area of a regular tetrahedron with side length $\frac{3}{2}$ inches?		$\frac{9\sqrt{3}}{4}$
19. The area of the two squares above are 4 *units*^{2} and 196 *units*^{2}. Find the length of the segment joining the centers of the inscribed circles.		10
20. In the figure, the area of ΔEFB is 3 square units. Find the area of ΔABC.		$\frac{16}{3}$

21. The sum of seven angles in an octagon is 995°. What is the number of degrees in the remaining angle?		85°
22. How many sides are in a heptadecagon?		17