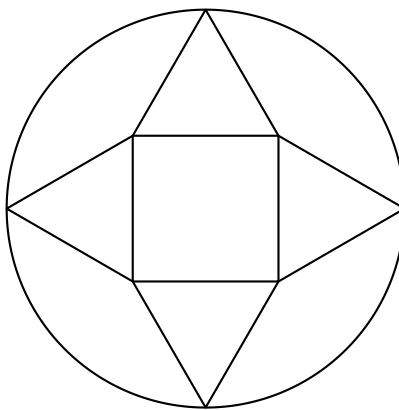


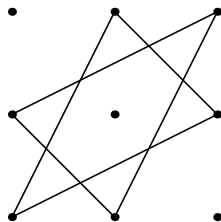
Triangles

1. _____ Triangle ABC is an isosceles triangle with side lengths of 25, 25 and 48 centimeters. What is the area of triangle ABC , in square centimeters?
2. _____ The legs of a right triangle measure $\frac{3}{5}$ inches and $\frac{4}{5}$ inches. In inches, what is the length of the hypotenuse?
3. _____ The perimeter of a rhombus is 156 cm. The shorter diagonal measures 30 cm. What is the length, in centimeters, of the longer diagonal?
4. _____ Two sides of a triangle are each 8 units long. If the third side has a whole number length, what is the greatest possible perimeter, in units, for the triangle?
5. _____ The lengths of the sides of a triangle are 6 cm, 7 cm and 9 cm. In a similar triangle whose perimeter is 110 cm, what is the length of the longest side, in centimeters?
6. _____ An equilateral triangle is constructed on each side of a square, as shown. All side lengths are 2 cm each. One vertex of each triangle lies on the circle. What is the length of the radius of the circle?
Express your answer in simplest radical form.

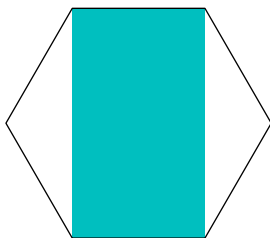


7. _____ $\triangle ABC$ has vertices at $A(-3, 4)$, $B(5, 0)$, and $C(1, -4)$. What is the x -coordinate of the point where the median from C intersects $\overline{AB}$?

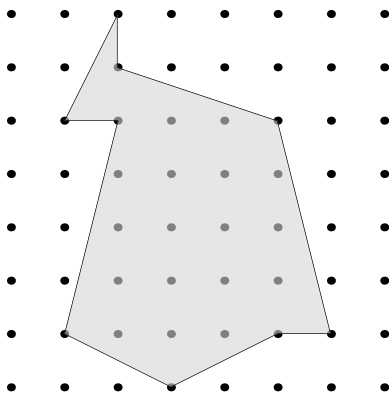
8. _____ The nine points of this grid are equally spaced horizontally and vertically. The distance between two neighboring points is 1 unit. What is the area, in square units, of the region where the two triangles overlap?



9. _____ The side length of the regular hexagon is 10 cm. What is the number of square centimeters in the area of the shaded region? Express your answer in simplest radical form.

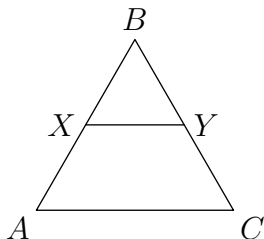


10. _____ In the figure shown here, the distance between any two horizontally or vertically adjacent dots is one unit. What is the area of the shaded polygon? Express your answer as a decimal to the nearest tenth.

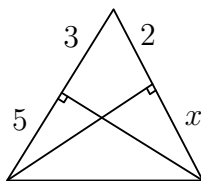


11. _____ In triangle ABC , $AB = 12$ units and $AC = 9$ units. Point D is on segment BC so that $BD : DC = 2 : 1$. If $AD = 6$ units, what is the length of segment BC ? Express your answer in simplest radical form.

12. _____ Segment XY is parallel to side AC and divides equilateral triangle ABC such that the ratio of the areas of equilateral triangles XYB and ABC is $1 : 4$. If $AC = 6$ units, what is the length of segment XY , in units?

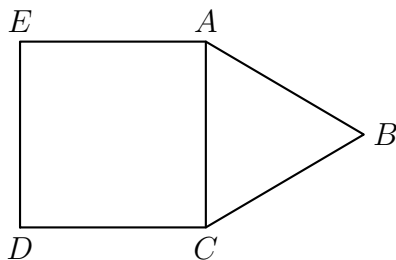


13. _____ Two of the altitudes of an acute triangle divide the sides into segments of lengths 5, 3, 2 and x units, as shown. What is the value of x ?



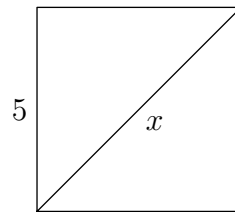
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14. _____ Equilateral triangle ABC and square $ACDE$ share side AC as shown. If square $ACDE$ has area 9 m^2 , what is the perimeter of pentagon $ABCDE$?



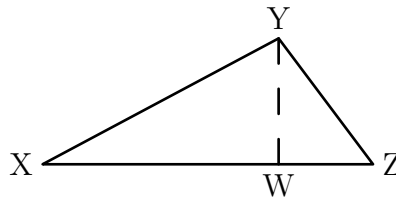
15. _____ A regular hexagon of side length 4 inches is divided into four triangles by three nonintersecting diagonals. What is the average area, in square inches, of each of the four triangles? Express your answer in simplest radical form.

16. _____ Find x . Express your answer in simplest radical form.



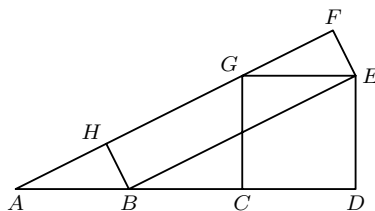
Square

17. _____ In $\triangle XYZ$, $XY = 17$ cm, $XW = 15$ cm and $YZ = 10$ cm. What is the length of altitude YW , in centimeters?

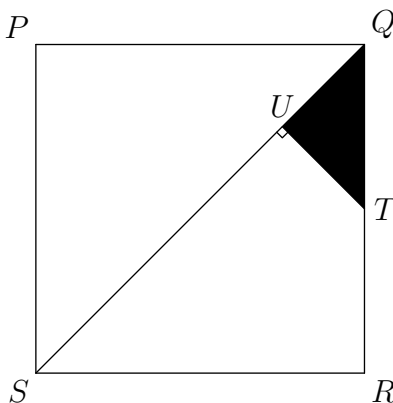


18. _____ The smallest angle of a triangle measures 18° . What would the degree measure of the smallest angle of the triangle be if the length of each side were doubled?

19. _____ In the figure below, quadrilateral $CDEG$ is a square with $CD = 3$, and quadrilateral $BEFH$ is a rectangle. If $BE = 5$, how many units is BH ? Express your answer as a mixed number.

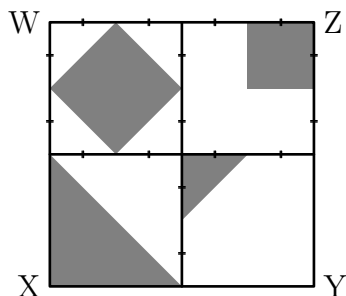


20. _____ In square $PQRS$, point T is the midpoint of the segment $\overline{QR}$ and $\overline{TU} \perp \overline{SQ}$. What is the ratio of the area of $\triangle QUT$ to the area of square $PQRS$? Express your answer as a common fraction.

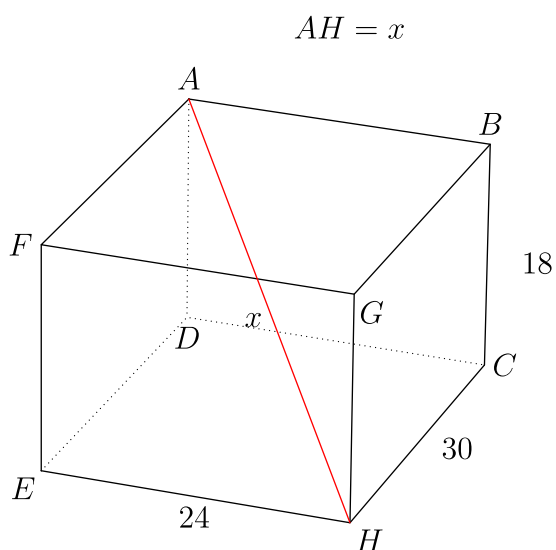


21. _____ What is the smallest possible area, in square units, of a right triangle with two sides measuring 4 units and 5 units?
22. _____ The sides of a triangle are in the ratio of 5:12:13. What is the area of the triangle, in square units, if its perimeter is 80 units? Express your answer as a common fraction.

23. _____ Square WXYZ is partitioned into four smaller congruent squares, and then portions of those squares are gray, as shown. All segments in the figure marked with single-hash marks are congruent. What fractional part of square WXYZ is gray? Express your answer as a common fraction.



24. _____ Find x . Express your answer in simplest radical form.



Right Rectangular Prism