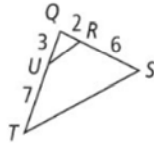


Show ALL work!!!

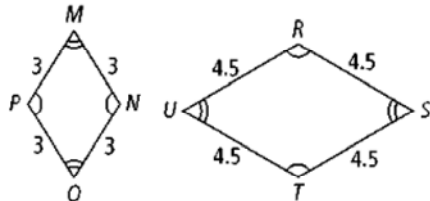
1. Write the a) converse b) inverse c) contrapositive of this statement:
 “If John eats bagels, then he will get sick.”
 a)
 b)
 c)
2. Determine whether the conditional statement and its converse are both true. If both are true, combine them as a biconditional statement. If either is false, give a counterexample.
 “If a figure is a quadrilateral then it is a polygon with four sides.”
3. The area of a square is 64 cm^2 . Find the length of the diagonal.
4. The perimeter of a square is 100 cm. What is its area?
5. From a point 30 m away from a 75 m tall building, what is the angle of elevation from the ground to the top of the building?
6. Draw a diagram for each to show two triangles are congruent by a) ASA b)SSS c)SAS d) HL e) AAS

7. State whether the triangles are similar. If so, write a similarity statement and the postulate or theorem you used.

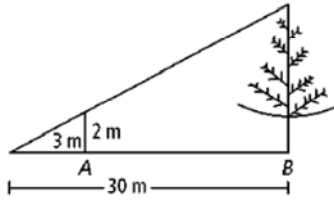


8. What is the area of an isosceles right triangle with hypotenuse 18 m?
9. What is the area of an equilateral triangle with a side of 4 inches?
10. The length of the hypotenuse of a 30-60-90 degree triangle is 14 cm. Find the perimeter.

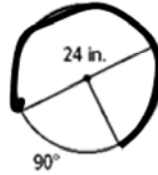
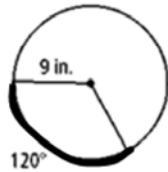
11. What is the measure of one interior angle of a regular pentagon?
12. What is the measure of one exterior angle of a regular dodecagon?
13. One interior angle of a regular polygon measures 165 degrees. How many sides does it have?
14. Are the polygons similar? If they are, write a similarity statement and give the scale factor.



15. A stick 2 m long is placed vertically at point B . The top of the stick is in line with the top of a tree as seen from point A , which is 3 m from the stick and 30 m from the tree. How tall is the tree?



16. Find the length of each darkened arc. Leave your answer in terms of π .



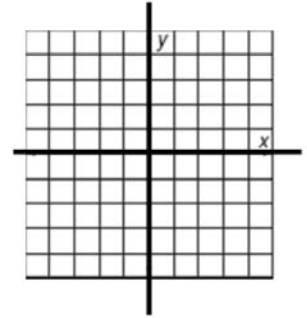
17. What is the surface area and volume of a sphere with a radius of 12 m?
18. What is the volume of a cylinder with radius 4 inches and height 6 inches?

19. What is the volume and surface area of a square-based pyramid with height 20 cm and slant height 25 cm?

20. Given $A(-3,5)$ and $B(2,3)$ and $C(-1,-1)$ What is the

- midpoint of segment AB
- slope of segment AB
- distance between A and B?
- the perimeter of $\triangle ABC$?

e) Classify $\triangle ABC$ by the sides.

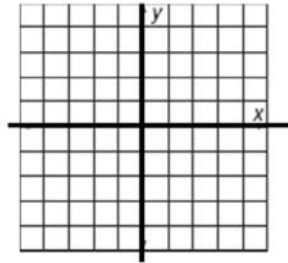
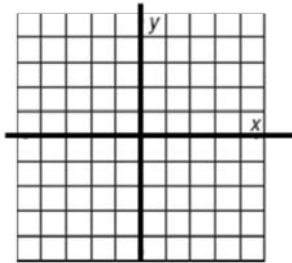


21. The angle of elevation from the ground to the top of the tree 100 ft away is 24 degrees. How tall is the tree (to the nearest foot)?

22. Determine the most precise name for each quadrilateral. Then find its area.

a. $A(0, -1), B(1, 4), C(4, 3), D(3, -2)$

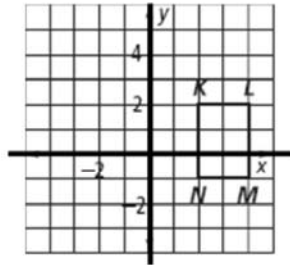
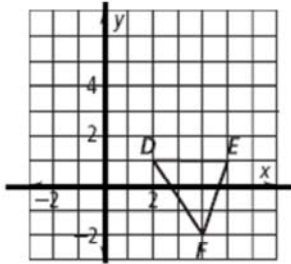
b. $A(0, 4), B(3, 1), C(0, -2), D(-3, 1)$



Graph the image of each figure under the given translation.

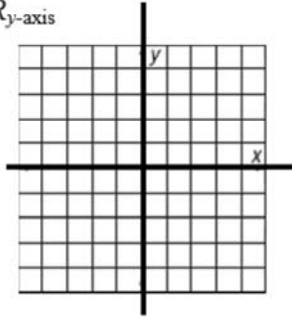
23. $T_{\langle -3, 4 \rangle} (\triangle DEF)$

24. $T_{\langle -5, 1 \rangle} (KLMN)$

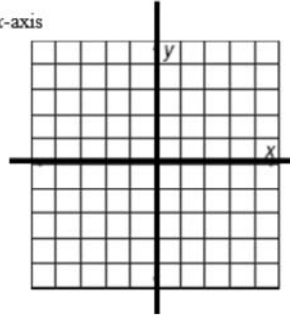


Coordinate Geometry Given points $M(3, 3)$, $N(5, 2)$, and $O(4, 4)$, graph $\triangle MNO$ and its reflection image as indicated.

25. $R_{y\text{-axis}}$



26. $R_{x\text{-axis}}$



Point O is the center of regular hexagon $BCDEFG$. Find the image of the given point or segment for the given rotation.

27. $r_{(120^\circ, O)}(F)$

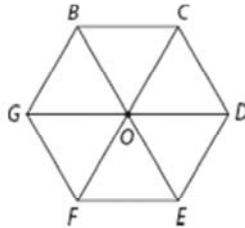
28. $r_{(180^\circ, O)}(B)$

29. $r_{(300^\circ, O)}(\overline{BG})$

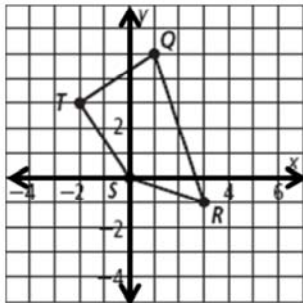
30. $r_{(360^\circ, O)}(\overline{CD})$

31. $r_{(60^\circ, O)}(E)$

32. $r_{(240^\circ, O)}(\overline{FE})$



Find the coordinates of the vertices of each image.



33. $D_3(QRST)$

34. $(R_{y\text{-axis}} \circ T_{\langle -3, 0 \rangle})(QRST)$