

Warm Up 103

1. volume
2. $\frac{2}{3}\pi x^3$
3. 9 cm

Lesson Practice 103

- a. 1120 in^3
- b. 2030.52 in^3
- c. $2,593,080 \text{ m}^3$

Practice 103

1. $A'(-3, 3)$, $B'(3, 3)$,
 $C'(4.5, -4.5)$, and
 $D'(-4.5, -4.5)$
2. 116°
3. Samantha is correct;
Farnaz has made an
error by using $m\angle U$
instead of $m\angle W$.
4. $V = \left(\frac{5}{24}\right)y(x^2 + 4x + 16)$
5. $\text{sine} = \frac{1}{4}\sqrt{5} + 1$,
 $\text{cosine} = \frac{1}{2}\sqrt{5 - \sqrt{5}}$,
 $\text{tangent} = \sqrt{5 - 2\sqrt{5}}$
6. You will always get a
rectangle because when
you fold in the acute
angles, you are making
a 90° angle.
7. $FH > AB$
8. The O indicates a
dilation centered at the
origin.
9. $m\angle J = 132^\circ$,
 $m\angle K = 90^\circ$, $m\angle L = 48^\circ$,
 $m\angle M = 90^\circ$
10. The robot will paint it
blue, and then attach a
widget to it.
11. See student work.
12. $\angle 1$ and $\angle 3$
13. Since \overline{RP} is tangent
to $\odot C$, $m\angle CPR = 90^\circ$,
so $x^2 - x - 90 = 0$, or
 $(x - 10)(x + 9) = 0$, so
 $x = 10$, ($x > 0$). Since
 $m\angle PRQ = (9x)^\circ$ then
 $m\angle PRQ = 90^\circ$. Since
 $\angle CQR$ is also a right
angle, $\angle PCQ$ is the
fourth right angle of a
rectangle. \overline{CP} and \overline{CQ}
are radii of $\odot C$, so
 $\overline{CP} \cong \overline{CQ}$; since two
tangents that intersect
at a point exterior to a
circle are congruent,
 $\overline{RP} \cong \overline{RQ}$ so $CPRQ$ is a
square.
14. 63 miles
15. $\theta = 25^\circ$

16. $\frac{3\sqrt{5}}{2}$
17. 3.7 inches
18. $V = \frac{1}{18}\pi h$
 $(r_1^2 + r_1r_2 + r_2^2)$
19. $S = 8748 \text{ ft}^2$;
 $V = 52,488 \text{ ft}^3$
20. A fractal is self-similar because it is composed of copies (or near-copies) of itself; the same relationships between larger sections of the fractal exist between corresponding smaller sections.
21. $(14, 21)$ and $(-7, 14)$
22. no; $(1, 2)$ is not.
23. $S \approx 860.7 \text{ m}^2$
24. $\begin{bmatrix} -8 & -4 \\ 0 & 2 \end{bmatrix}$
25. 175.9 in^3
26. They are supplementary, by the Chord-Chord Angle Theorem.
27. from the centroid, or center of gravity; 1.6 inches from one vertex, 2.2 inches from another, and 2.5 inches from the third
28. B
29. $\sqrt{3}$
30. 20.5 in.