

Warm Up 102

1. translation
2. See student work.
3. D

Lesson Practice 102

- a. $(10, -4)$ becomes $(25, -10)$ and $(0, 8)$ becomes $(0, 20)$.
- b. $2 \cdot \begin{bmatrix} 2 & 2 & 4 & 4 \\ 2 & 7 & 7 & 2 \end{bmatrix}$
 $= \begin{bmatrix} 4 & 4 & 8 & 8 \\ 4 & 14 & 14 & 4 \end{bmatrix}$
- c. $30,000 \text{ ft}^2$

Practice 102

1. $\frac{33}{49}$
2. $(-28, 35)$
3. $1014\sqrt{3} \text{ ft}^2$
4. 7.5 cm
5. $\langle 62, 81 \rangle$
6. $x \approx 57.35$
7. Abilene – Austin,
Austin – Fort Worth,
Abilene – Fort Worth
8. 360 ft^2
9. $(3, 3)$, $(3, 6)$, and $(9, 3)$
10. 4 units^2
11. $V \approx 528,000$ gallons
12. 2
13. model = 302 in^2 ,
 287 in^3 ; actual
spacecraft = 537 ft^2 ,
 680 ft^3
14. C
15. $S = 2\pi r\sqrt{4r^2 + h^2}$
16. First, find the coordinates $D(0, 4)$ and $E(-2, 1)$. Then use the slope formula to find that the slope of \overline{BC} is $\frac{3}{2}$ and the slope of \overline{DE} is $\frac{3}{2}$. So $\overline{BC} \parallel \overline{DE}$.
17. $45^\circ, x\sqrt{2}$
18. $\begin{bmatrix} 4 & 4 & 4 \\ -3 & -3 & -3 \end{bmatrix}$
19. $\begin{bmatrix} 3 & 1 \\ 4 & 0 \end{bmatrix} + \begin{bmatrix} 0 & 0 \\ -2 & -2 \end{bmatrix}$
 $= \begin{bmatrix} 3 & 1 \\ 2 & -2 \end{bmatrix}$
20. 1.3
21. By the Vertical Angles Theorem, $\angle 1$ and $\angle 3$ are congruent.
22. $AC = 18$; $CD = 18$;
 $CE = 21$; $BC = 21$
23. See student work.
Sample: any two triangles with 2 pairs of corresponding angles marked congruent.

24. 0.73
25. $XY = 4, XZ = 2,$
 $YZ = 4.5; m\angle Y = 27^\circ,$
 $m\angle Z = 63^\circ, m\angle X = 90^\circ$
26. $3 \cdot \begin{bmatrix} -2 & 2 & 2 & -2 \\ 4 & 4 & -4 & -4 \end{bmatrix}$
 $= \begin{bmatrix} -6 & 6 & 6 & -6 \\ 12 & 12 & -12 & -12 \end{bmatrix}$
27. $x^2 + 4x - 165 = 0;$
 $x = 11$ or $-15; x = 11$
28. 44.7
29. A tangent can be thought of as a secant that intersects the circle at only one point.
30. HA Congruence Theorem