Warm Up 92

1. sides; angles
2. rectangle
3. D

Lesson Practice 92

a. The slope of $\overline{CD} = -2$, of $\overline{DE} = -\frac{3}{4}$, of $\overline{EF} = -2$, and of $\overline{CF} = -\frac{3}{4}$; $\overline{CD} \parallel \overline{EF}$ and $\overline{DE} \parallel \overline{CF}$, so $CDEF$ is a parallelogram.

b. The slope of $\overline{PQ} = -\frac{2}{3}$, of $\overline{QR} = \frac{2}{3}$, of $\overline{RS} = -\frac{2}{3}$, and of $\overline{PS}$ is undefined; $\overline{PQ} \parallel \overline{RS}$ but $\overline{QR} \nparallel \overline{QS}$, so $PQRS$ is a trapezoid.

c. $JK = \sqrt{5}$, $ST = \sqrt{5}$, $KL = 4$, $TU = 4$, $LM = \sqrt{10}$, $UV = \sqrt{10}$, $JM = \sqrt{17}$, $SV = \sqrt{17}$, $JL = \sqrt{29}$, and $SU = \sqrt{29}$, so $JKLM \cong STUV$.

d. The slope of $\overline{GH} = 3$, slope of $\overline{HJ} = 0$, slope of $\overline{JK} = 3$, and slope of $\overline{GK} = -\frac{3}{4}$; $\overline{GH} \parallel \overline{JK}$ but $\overline{HJ} \nparallel \overline{GK}$, so $GHJK$ is a trapezoid.

Practice 92

1. C

2. $\langle 78.25, 16.63 \rangle$

3. $AB = 2\sqrt{2} = EF$, $BC = 3 = FG$, $CD = \sqrt{2} = GH$, and $AD = \sqrt{5} = EH$; slopes of $\overline{AB}$, $\overline{BC}$, $\overline{CD}$, and $\overline{AD}$ are 1, 0, 1, and $-\frac{1}{2}$, while slopes of $\overline{EF}$, $\overline{FG}$, $\overline{GH}$, and $\overline{EH}$ are -1, undefined, -1, and 2, therefore, $ABCD \cong EFGH$.

4. $\overline{ED}$

5. Sample: $y = -5x + 3$; $y = 0.2x$

6. $n + 1$

7. $m\widehat{BF} = 46°$; $m\widehat{CE} = 20°$

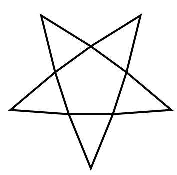
8. The slopes of $\overline{WX}$, $\overline{XY}$, $\overline{YZ}$, and $\overline{WZ}$ are $-\frac{1}{3}$, 1, $-\frac{1}{3}$, and 1; $\overline{WX} \parallel \overline{YZ}$ and $\overline{XY} \parallel \overline{WZ}$, so $WXYZ$ is a parallelogram.

9. Line ℓ is not a tangent, because this would contradict Theorem 58-2. Since it does intersect $\odot C$, it does so at two points, one of which is P, so the other is Q. Since $\overline{CP} \cong \overline{CQ}$, $\triangle CPQ$ is isosceles with base angles $\angle CPQ$ and $\angle CQP$. These angles are congruent by the Isosceles Triangle Theorem, and since a triangle can have at most one right or one obtuse angle, $\angle CPQ$ and $\angle CQP$ are acute congruent angles.

10. The slopes of $\overline{PQ}$, $\overline{QR}$, $\overline{RS}$, and PS are 5, 0, $\frac{5}{2}$, and 0; $\overline{QR} \parallel \overline{PS}$ but $\overline{PQ} \nparallel \overline{RS}$, so $PQRS$ is a trapezoid.

11. $\langle -4, -9 \rangle$

12. Sample:



13. $\frac{b}{c} = \frac{1}{\sqrt{1 + \left(\frac{a}{b}\right)^2}}$

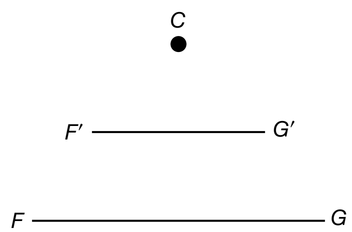
$= \frac{1}{\sqrt{\frac{b^2}{b^2} + \frac{a^2}{b^2}}} = \frac{1}{\sqrt{\frac{c^2}{b^2}}}$

$= \frac{1}{\frac{c}{b}} = \frac{b}{c}$

14. $GF = 5$, $BG = 10.7$

15. a. 0.0625 or $\frac{3}{50}$

b. sample answer: yes; since a person would be aiming for the center, it would not be the same probability as a random event.

16. 

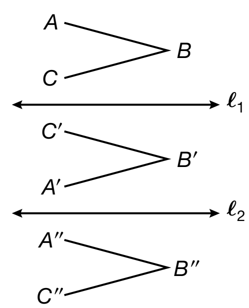
17. 5196.15 meters

18. 10 times

19. 6π yards

20. $JK = 3 = NO$, $KL = \sqrt{10} = OP$, $LM = \sqrt{10} = PQ$, and $JM = \sqrt{17} = NQ$; The slopes of $\overline{JK}$, $\overline{KL}$, $\overline{LM}$, and $\overline{JM}$ are 0, 3, $-\frac{1}{3}$, and 4, while slopes of $\overline{NO}$, $\overline{OP}$, $\overline{PQ}$, and $\overline{NQ}$ are 0, -3, $\frac{1}{3}$, and -4, so $\angle J \cong \angle N$, $\angle K \cong \angle O$, $\angle L \cong \angle P$, and $\angle M \cong \angle Q$; therefore, $JKLM \cong NOPQ$.

21. $\tan x = 3$

22. 

23. $\sin \theta$

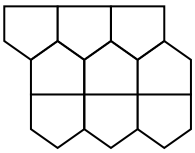
24. 18 inches

25. 15 in^3

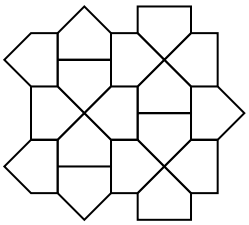
26. Law of Detachment

27. The sides of the final image will lie on the sides of the original triangle, but the vertices will be different. E'' will coincide with F, F'' with G and G'' with E.

28. **a.**



b.



29. 9° to 14°

30. $\tan\theta = \frac{1}{12}$, $\theta \approx 5°$