Review & Preview

5-126. The third side is 12.2 units long. The angle opposite the side of length 10 is approximately 35.45°, while the angle opposite the side of length 17 is approximately 99.55°.

5-127. $x \approx 11.3$ units; Methods include using the Pythagorean Theorem to set up the equation $x^2 + x^2 = 16^2$, using the 45°- 45°- 90° triangle shortcut to divide 16 by $\sqrt{2}$, or to use sine or cosine to solve using a trigonometric ratio.

5-128. No, because to be a rectangle, the parallelogram needs to have 4 right angles. Students can provide a counterexample of a parallelogram without 4 right angles.

5-129. See below.

a. $P \approx 40.32$ mm, $A = 72$ sq. mm

b. $P = 30$ feet, $A = 36$ square feet

5-130. $A(2, 4)$, $B(6, 2)$, $C(4, 5)$

5-131. The expected value per throw is $\frac{1}{4}(2) + \frac{1}{4}(3) + \frac{1}{2}(5) = \frac{15}{4} = 3.75$, so her expected winnings over 3 games are 3(3.75) = 11.25; yes, she should win enough tickets to get the panda bear.

5-132. $y = \frac{3}{4}x + 4$

5-133. See below.

a. $m\angle ABE = 80°$, $m\angle EBC = 60°$, $m\angle BCE = 40°$, $m\angle ECD = 80°$, $m\angle DEC = 40°$, $m\angle CEB = 80°$, $m\angle BEA = 60°$,

b. 360°

5-134. See below.

a. ≈ 8.64 cm

b. $PS = SR = 5.27$cm, so the perimeter is ≈ 25.5 cm

5-135. Area ≈ 21.86 sq. units, perimeter ≈ 24.59 units

5-136. See below.

a. Explicit $t(n) = -2 + 3n$; Recursive $t(0) = -2$, $t(n + 1) = t(n) + 3$

b. Explicit $t(n) = 6(\frac{1}{2})^n$; Recursive $t(0) = 6$, $t(n + 1) = \frac{1}{2}t(n)$

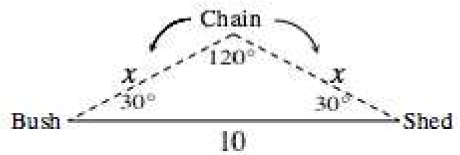
c. $t(n) = 24 - 7n$

d. $t(n) = 5(1.2)^n$

e. $t(4) = 1620$

5-137. See below.

a. See diagram below.



b. $x = \frac{10\sqrt{3}}{3} \approx 5.77$ ft

5-138. See below.

a. $5+\sqrt{20}+\sqrt{37} \approx 15.55$ units

b. ≈ 31.11

c. $(-2, 0)$