9.4 Geometry - Second Edition, Inscribed Angles, Review Answers

1. 48°
2. 120°
3. 54°
4. 45°
5. 87°
6. 27°
7. 100.5°
8. 95.5°
9. 76.5°
10. 84.5°
11. 51°
12. 46°
13. $x = 180^\circ, y = 21^\circ$
14. $x = 60^\circ, y = 49^\circ$
15. $x = 30^\circ, y = 60^\circ$
16. $x = 72^\circ, y = 92^\circ$
17. $x = 200^\circ, y = 100^\circ$
18. $x = 68^\circ, y = 99^\circ$
19. $x = 93^\circ, y = 97^\circ$
20. $x = 10^\circ$
21. $x = 24^\circ$
22. $x = 74^\circ, y = 106^\circ$
23. $x = 35^\circ, y = 35^\circ$
24. 55°
25. 70°
26. 110°
27. 90°
28. 20°
29. 90°
30.

Table 9.2:

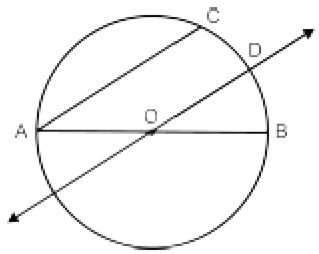
Statement	***Reason***
1. Inscribed $\angle ABC$ and diameter $\overline{BD}$ $m\angle ABE = x^\circ$ and $m\angle CBE = y^\circ$	Given
2. $x^\circ + y^\circ = m\angle ABC$	Angle Addition Postulate
3. $\overline{AE} \cong \overline{EB}$ and $\overline{EB} \cong \overline{EC}$	All radii are congruent
4. $\triangle AEB$ and $\triangle EBC$ are isosceles	Definition of an isosceles triangle
5. $m\angle EAB = x^\circ$ and $m\angle ECB = y^\circ$	Isosceles Triangle Theorem
6. $m\angle AED = 2x^\circ$ and $m\angle CED = 2y^\circ$	Exterior Angle Theorem
7. $m\widehat{AD} = 2x^\circ$ and $m\widehat{DC} = 2y^\circ$	The measure of an arc is the same as its central angle.
8. $m\widehat{AD} + m\widehat{DC} = m\widehat{AC}$	Arc Addition Postulate
9. $m\widehat{AC} = 2x^\circ + 2y^\circ$	Substitution
10. $m\widehat{AC} = 2(x^\circ + y^\circ)$	Distributive PoE
11. $m\widehat{AC} = 2m\angle ABC$	Subsitution
12. $m\angle ABC = \frac{1}{2}m\widehat{AC}$	Division PoE

31.

Table 9.3:

Statement	*Reason*
1. $\angle ACB$ and $\angle ADB$ intercept $\widehat{AB}$	1. Given
2. $m\angle ACB = \frac{1}{2}m\widehat{AB}$	
m $\angle ADB = \frac{1}{2}m\widehat{AB}$	2. Inscribed Angle Theorem
3. $m\angle ACB = m\angle ADB$	3. Transitive Property
4. $\angle ACB \cong \angle ADB$	4. Definition of Congruence

32. Since $\overline{AC} \parallel \overleftrightarrow{OD}, m\angle CAB = m\angle DOB$ by Corresponding Angles Postulate.



Also, $m\angle DOB = m\widehat{DB}$ and $m\angle CAB = \frac{1}{2}m\widehat{CB}$, so $m\widehat{DB} = \frac{1}{2}m\widehat{CB}$. This makes D the midpoint of $\widehat{CB}$.