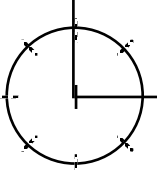
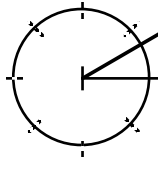
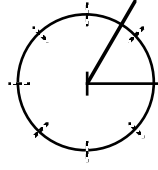
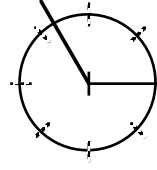
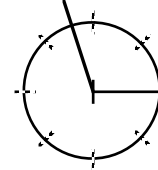
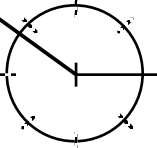
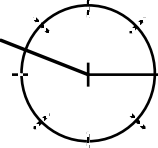
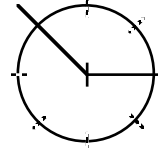
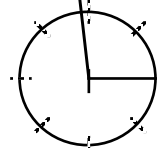
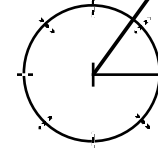
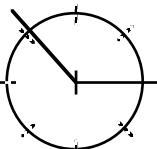
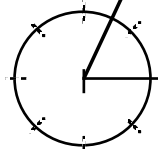
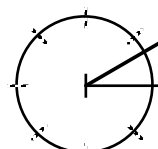
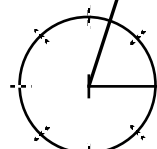
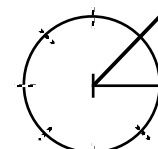
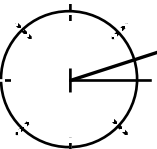
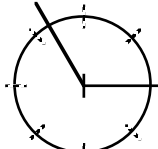
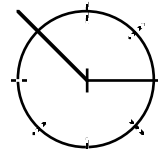
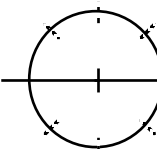
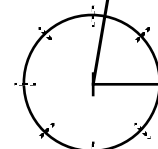
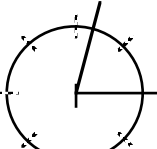
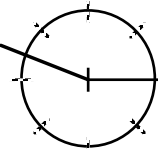
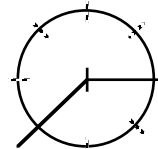
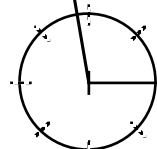


# Chapter 1, Essential Geometry

## Focus Exercise Answers

### Section 1.1 Basic Definitions of Geometry

1. $90^\circ$	2. $30^\circ$	3. $60^\circ$	4. $120^\circ$	5. $108^\circ$
				
6. $144^\circ$	7. $160^\circ$	8. $135^\circ$	9. $96^\circ$	10. $54^\circ$
				
11. $132^\circ$	12. $66^\circ$	13. $\frac{1}{12}$	14. $\frac{1}{5}$	15. $\frac{1}{8}$
				
16. $\frac{1}{20}$	17. $\frac{1}{3}$	18. $\frac{3}{8}$	19. $\frac{1}{2}$	20. $\frac{2}{9}$
				
21. $\frac{5}{24}$	22. $\frac{4}{9}$	23. $\frac{5}{8}$	24. $\frac{5}{18}$	
				

25.  $57^\circ 53' 55''$

26.  $153^\circ 52' 10''$

27.  $153^\circ 07' 53''$

28.  $143^\circ 14' 21''$

29.  $90^\circ$

30.  $180^\circ$

31.  $33^\circ 15' 13''$

32.  $56^\circ 34' 28''$

33.  $11^\circ 42' 54''$

34.  $19^\circ 43' 41''$

35.  $60^\circ 45' 28''$

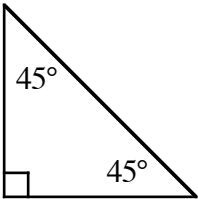
36.  $52^\circ 33' 13''$

## Section 1.2 Angles and Angle Measure

1. Corresponding angles; congruent
2. Alternate exterior angles; congruent
3. Vertical angles; congruent
4. Adjacent angles; not congruent
5. Corresponding angles; congruent
6. Alternate interior angles; congruent
7.  $\angle 1 \cong \angle 6$ ;  $\angle 2 \cong \angle 5$ ;  $\angle 4 \cong \angle AEB$ ;  $\angle 8 \cong \angle DAE$
8.  $\angle 2$  and  $\angle 4$ ;  $\angle 4$  and  $\angle 5$ ;  $\angle 5$  and  $\angle AEB$ ;  $\angle 2$  and  $\angle AEB$ ;  $\angle 8$  and  $\angle DAE$ ;  $\angle ADC$  and  $\angle DCB$
9.  $m\angle XYZ = 30^\circ$
10.  $m\angle XYZ = 54.2^\circ$
11.  $m\angle XYZ = 56^\circ 13'$
12.  $m\angle XYZ = 7^\circ 44' 24''$
13.  $m\angle XYZ = 135^\circ$
14.  $m\angle XYZ = 18.7^\circ$
15.  $m\angle XYZ = 143^\circ 45'$
16.  $m\angle XYZ = 77^\circ 15' 52''$
17.  $m\angle ABD = 28^\circ$
18.  $m\angle XYW = 74^\circ$
19.  $m\angle ABD = 30.95^\circ$
20.  $m\angle XYW = 66.6^\circ$
21.  $m\angle ABD = 24^\circ 16' 09''$
22.  $m\angle XYW = 78^\circ 03' 21''$
23.  $m\angle ABD = 18^\circ 55' 31''$
24.  $m\angle XYW = 74^\circ 38' 55''$
25.  $m\angle ABC = 54^\circ$
26.  $m\angle XYZ = 135.6^\circ$
27.  $m\angle ABC = 44^\circ 30'$
28.  $m\angle XYZ = 154^\circ 10' 36''$
29.  $m\angle ABC = 59^\circ 13' 42''$
30.  $m\angle XYZ = 143^\circ 51' 24''$

## Section 1.3 Triangles

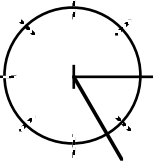
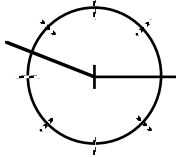
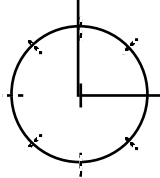
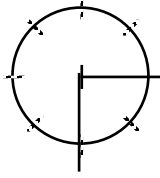
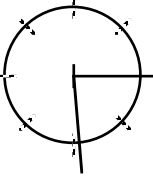
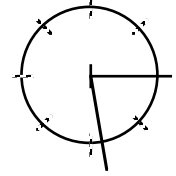
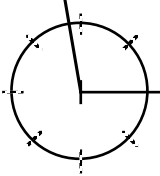
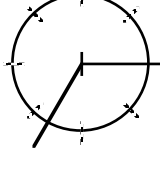
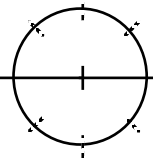
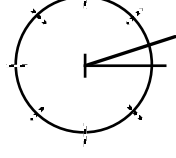
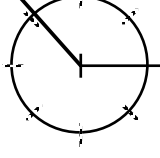
1. Yes
2. No
3. No
4. Yes
5. Yes
6. Yes
7.  $m\angle C = 69^\circ$ ; acute triangle
8.  $m\angle C = 90^\circ$ ; right triangle
9.  $m\angle C = 48^\circ 52'$ ; obtuse triangle
10.  $m\angle C = 115^\circ 51' 33''$ ; obtuse triangle
- 11:
  - a) No. (Answers may vary. One answer is: There are no  $90^\circ$  angles in an equilateral triangle.)
  - b) Yes.
  - c) Yes.
  - d) No. An oblique triangle has no right angle.
12.
 


13.  $m\angle Y = 48^\circ$ ;  $m\angle Z = 84^\circ$
14.  $m\angle X = 76^\circ$ ;  $m\angle Z = 28^\circ$
15.  $m\angle X = m\angle Y = 73^\circ$
16.  $m\angle X = m\angle Y = 37.5^\circ$
17.  $m\angle Y = 53^\circ 37' 49''$ ;  $m\angle Z = 72^\circ 44' 22''$
18.  $m\angle X = m\angle Y = 38^\circ 47' 57''$

19.  $a, c, b$                       20.  $e, f, d$                       21.  $h, j, g$                       22.  $p, k, m$   
 23.  $\angle F, \angle H, \angle G$             24.  $\angle Q, \angle D, \angle E$             25.  $\angle P, \angle R, \angle S$             26.  $\angle T, \angle N, \angle U$   
 27.  $c = 2\sqrt{13}$                     28.  $c = \sqrt{7}$                       29.  $c = 3\sqrt{2}$                     30.  $a = 4\sqrt{3}$   
 31.  $a = 5$                             32.  $b = 2\sqrt{3}$                     33.  $c = 3\sqrt{3}$                     34.  $c = 1$   
 35.  $a = 3, b = 4, c = 5$                       36.  $a = 8, b = 6, c = 10$   
 37.  $a = 21, b = 20, c = 29$

### Section 1.4 Circles

1.  $s = 2\pi$                       2.  $s = 4\pi$                       3.  $s = \frac{\pi}{6}$                       4.  $s = \frac{8\pi}{9}$   
 5.  $s = \frac{4\pi}{3}$                       6.  $s = 10\pi$                       7.  $s = \frac{5\pi}{12}$                       8.  $s = \frac{5\pi}{8}$   
 9.  $\theta = 90^\circ$                       10.  $\theta = 60^\circ$                       11.  $\theta = 120^\circ$                       12.  $\theta = 36^\circ$   
 13.  $\theta = 90^\circ$                       14.  $\theta = 120^\circ$                       15.  $\theta = 225^\circ$                       16.  $\theta = 135^\circ$

17. $300^\circ$ 	18. $160^\circ$ 	19. $90^\circ$ 	20. $270^\circ$ 
21. $275^\circ$ 	22. $280^\circ$ 	23. $-260^\circ$ 	24. $-120^\circ$ 
25. $-180^\circ$ 	26. $-340^\circ$ 	27. $-230^\circ$ 	28. $-150^\circ$ 