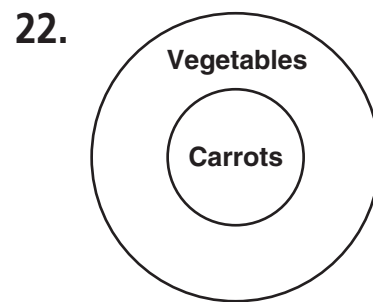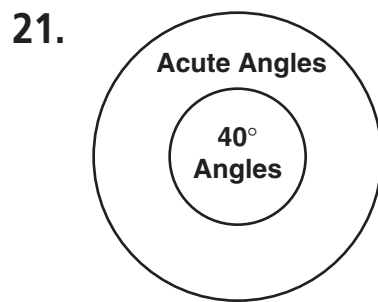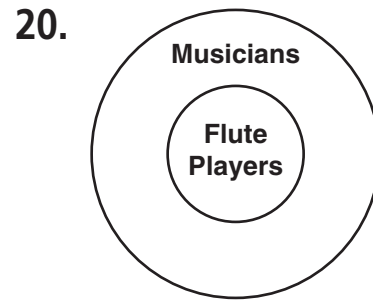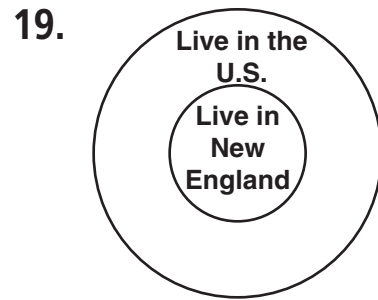# Answers for Lesson 2-1, pp. 83–86 Exercises

1. Hypothesis: You send in the proof-of-purchase.
   Conclusion: They send you a get-well card.

2. Hypothesis: You want to be fit.
   Conclusion: Get plenty of exercise.

3. Hypothesis: $x + 20 = 32$
   Conclusion: $x = 12$

4. Hypothesis: You can see the magic in a fairy tale.
   Conclusion: You can face the future.

5. Hypothesis: Somebody throws a brick at me.
   Conclusion: I can catch it and throw it back.

6. Hypothesis: You can accept defeat and open your pay envelope without feeling guilty.
   Conclusion: You're stealing.

7. Hypothesis: My fans think that I can do everything I say I can do.
   Conclusion: They're crazier than I am.

8. Hypothesis: I could paint that flower in a huge scale.
   Conclusion: You could not ignore its beauty.

9. If an object is glass, then it is fragile.

10. If $3x - 7 = 14$, then $3x = 21$.

11. If a whole number has 2 as a factor, then it is even.

12. If something is an obtuse angle, then it has a measure greater than 90.

13. If the weather is good, then a picnic is enjoyable.

14. If two lines are skew, then they do not lie in the same plane.

15. Sunday

16. Answers may vary. Sample: 9

17. Mexico

18. Answers may vary. Sample: softball

19.

Live in the U.S.

Live in New England

20.

Musicians

Flute Players

21.

Acute Angles

40° Angles

22.

Vegetables

Carrots

23. If you grow, then you eat your vegetables.

24. If a triangle has a 90° angle, then it is a right triangle.

25. If two segments have the same length, then they are congruent.

26. If you do not get paid, then you do not work.

27. Converse: If you have a passport, then you travel from the United States to Kenya. The original conditional is true and the converse is false.

28. Converse: If the coordinates of a point are positive, then it is in the first quadrant. Both statements are true.

29. Converse: If the chemical formula for a substance is H_2O, then it is water. Both statements are true.

30. Converse: If an event is certain to occur, then the probability of the event is 1. Both statements are true.

31. Converse: If you are in Indianapolis, then you are in Indiana. The original statement is false and the converse is true.

32. Converse: If two angles are congruent, then they have measure 90. The original statement is true and the converse is false.

33. If a person is an Olympian, then that person is an athlete.

34. If something is a robin, then it is a bird.

35. If something is a whole number, then it is an integer.

36. a. If x^2 is an integer divisible by 3, then x is an integer divisible by 3.

    b. The converse is false. Counterexample: If $x^2 = 3$, then $x = \sqrt{3}$ and $\sqrt{3}$ is not an integer divisible by 3.

37. A

38. If we're half the people, then we should be half the Congress.

39. If a work is great, then it is made out of a combination of obedience and liberty.

40. If a problem is well-stated, then it is half solved.

41. If $x = 18$, then $x - 3 = 15$; true.

42. If $-y$ is positive, then y is negative; true.

43. If $|x| = 6$, then $x = -6$; 6.

44. If $x^2 > 0$, then $x < 0$; 5.

45. If $x^2 = 4$, then $x = 2$; -2.

46. If $x^3 < 0$, then $x < 0$; true.

47. a. If you want to look good at the beach this summer, then join GoodFit Health Club.

b. If I join GoodFit Health Club, then I will look good at the beach this summer.

c. Answers may vary. Sample: Al's statement means that joining the club will make him look good. The ad statement does not guarantee that he will look good.

48. If a figure is a square, then it has four congruent angles; true.

49. If a figure has four congruent angles, then it is a square; false; a rectangle that is not a square.

50. If a figure has four congruent sides, then it has four congruent angles; false; a rhombus that is not square.

51. If a figure has four congruent angles and four congruent sides, then it is a square; true.

52. Answers may vary. Sample: If you had bought Treadmaster tires, you would not have had a flat tire.

53. Check students' work.

54–58. Answers may vary. Samples are given.

54. If two lines intersect, then they meet in exactly one point.

55. If two planes intersect, then they meet in exactly one line.

56. If two figures are congruent, then they have equal areas.

57. If two points are given, then there is exactly one line through them.

58. If three noncollinear points are given, then there is exactly one plane that contains them.

59. All integers that are divisible by 8 are divisible by 2.

60. No triangles are squares. (or No squares are triangles.)

61. Some students are musicians. (or Some musicians are students.)

62. Answers may vary. Sample: All apples are fruits; Conditional: If something is an apple, then it is a fruit. No line segments are rays; Conditional: If something is a line segment, then it is not a ray.

63. 25 statements;

→	r	s	t	u	v
r	T	F	T	F	T
s	F	T	T	F	T
t	F	F	T	F	T
u	T	T	T	T	T
v	F	F	T	F	T

Conclusion (column header), *Hypothesis* (row header)