Answers for 2.1

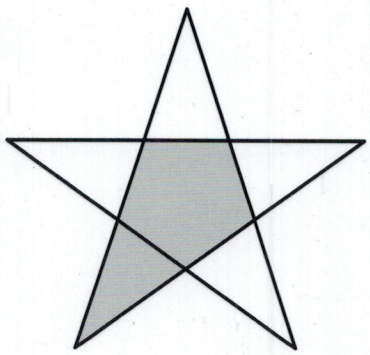
For use with pages 75–78

2.1 Skill Practice

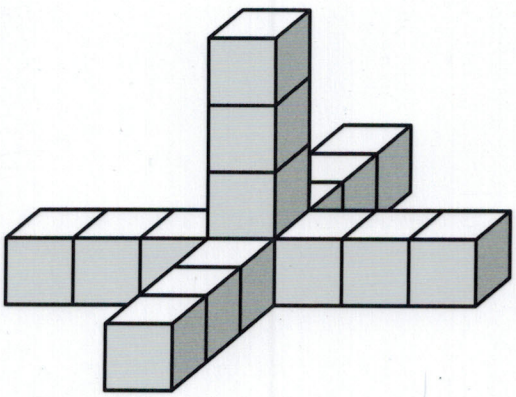
1. *Sample answer:* A guess based on observation

2. *Sample answer:* Contrary, opposite, opposing

3.



4.



5. C

6. The numbers are increasing by 4; 17.

7. The numbers are 4 times the previous number; 768.

8. The numbers are $\frac{1}{2}$ of the previous number; 0.625.

9. The rate of decrease is increasing by 1; -6.

10. The numbers are decreasing by $\frac{1}{3}$; $-\frac{1}{3}$.

11. The numbers are increasing by successive multiples of 3; 25.

12. 21 **13.** even

14. $-4 \cdot -7 = 28$

15. $(3 + 4)^2 = 7^2$

$= 49 \neq 3^2 + 4^2$

$= 9 + 16 = 25$

16. 2

17. $3 \cdot 6 = 18$

18. All angles are not acute; some angles are obtuse angles, some angles are acute, and some angles are right.

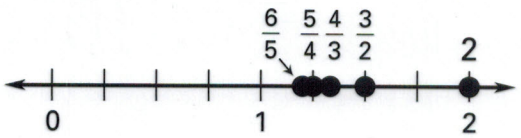
19. To be true, a conjecture must be true for all cases.

20. $y = x - 4$

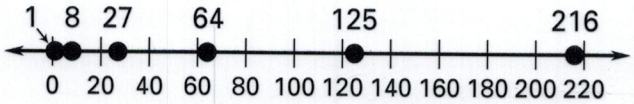
21. $y = 2x$

22. B

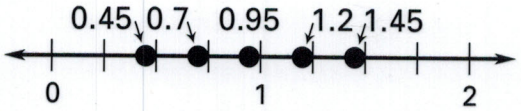
23. Previous numerator becomes the next denominator while the numerator is one more than the denominator; $\frac{6}{5}$.



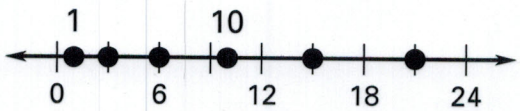
24. Successive natural numbers are cubed; 216.



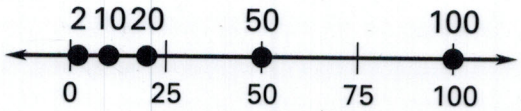
25. 0.25 is being added to each number; 1.45.



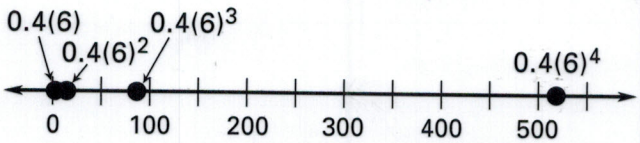
26. The rate of increase is increasing by 1; 21.



27. Multiply the first number by 10 to get the second number, take half of the second number to get the third number, and repeat the pattern; 500.



28. The numbers are 6 times the previous number; $0.4(6)^4$.



29. $r > 1$; $0 < r < 1$; raising numbers greater than one by successive natural number powers increases the result while raising a number between 0 and 1 by successive natural number powers decreases the result.

30. Yes; the rate of increase is increasing by 1, which would make the next number 7.

31. a. Successive powers of $\frac{1}{2}$ are being added to each number; $1\frac{15}{16}$, $1\frac{31}{32}$, $1\frac{63}{64}$.

b. They are getter larger.

c. They are getting closer and closer to the number 2; the difference between 2 and each new term is getting smaller.

2.1 Problem Solving

32. C, C, C, F, F

33. *Sample answer:* The number of e-mail messages will increase in 2004; the number of e-mail messages has increased for the past 7 years.

34. a.

Figure number	1	2	3
Distance around	4	8	12

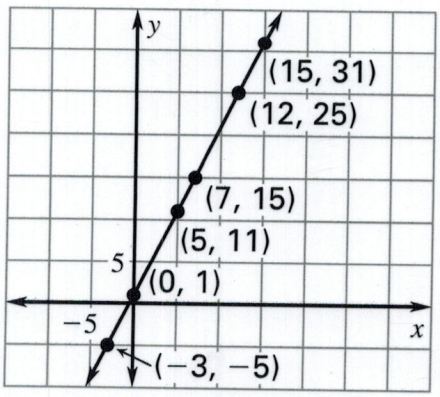
Figure number	4	5
Distance around	16	20

b. The distances are increasing each time by 4 units.

c. 80 units

35. a. 0, 7, 25

b.



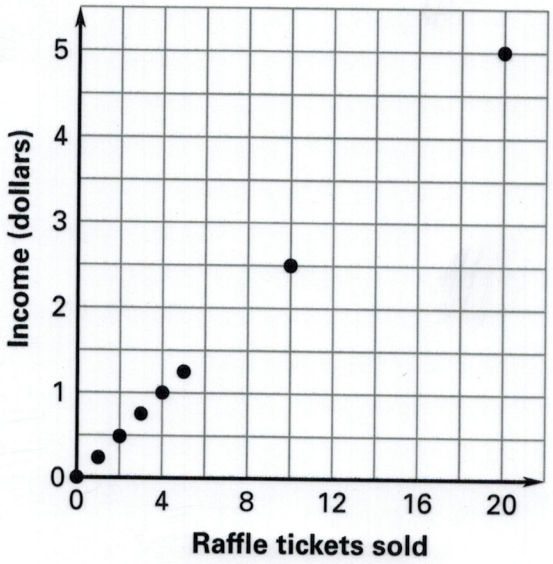
c. Double the value of x and add 1 to the result, $y = 2x + 1$.

36. a.

Raffle tickets sold	0	1	2	3
Income (dollars)	0	0.25	0.50	0.75

Raffle tickets sold	4	5	10	20
Income (dollars)	1.00	1.25	2.50	5.00

b.



linear, increasing

c. $y = 0.25x$

d. 57 tickets; substitute 14 into the inequality $y < 0.25x$ for y; $14 < 0.25x$, $56 < x$, $x > 56$.

37. a. sum, two

b. 144, 233, 377

c. *Sample answer:* spiral patterns on the head of a sunflower

38. a. *Sample answer:* 15

b. *Sample answer:* 16

c. *Sample answer:* 40

2.1 Mixed Review

39. $4x - 20$

40. $-2x + 14$

41. $-8n + 20$

42. $x^2 + 8x$

43. 3.3 pets

44. 2.5 pets

45. 1 pet

46. median

47. 20 in., 21 in.^{2}

48. 16 cm, 16 cm^2

49. 24 ft, 24 ft^2