Math Placement Test Review

1) Multiply and simplify. $\dfrac{21}{12} \cdot \dfrac{6}{7}$

   A) $\dfrac{126}{84}$ B) $\dfrac{3}{2}$ C) $\dfrac{9}{7}$ D) $\dfrac{27}{26}$

2) Multiply and simplify. $\dfrac{12x}{5} \cdot \dfrac{15}{14 \, x \, y}$

   A) $\dfrac{27}{19}$ B) $\dfrac{18}{7y}$ C) $\dfrac{180}{70}$ D) $\dfrac{14}{15}$

3) Divide and simplify. $\dfrac{30x}{-7} \div \dfrac{6x}{35}$

   A) 25   B) –25   C) $-\dfrac{36}{49}$ D) 5

4) Find the prime factorization 72.

   A) $2 \cdot 2 \cdot 2 \cdot 3 \cdot 3$ B) $2 \cdot 2 \cdot 2 \cdot 3$ C) $2 \cdot 2 \cdot 2 \cdot 2 \cdot 3 \cdot 3$ D) $2 \cdot 2 \cdot 2 \cdot 3 \cdot 5$

5) Find all the factors of 45.

   A) 1, 3, 5, 15, 45   B) 1, 3, 5, 9, 15, 30, 45
   C) 1, 3, 5, 9, 15, 45   D) 1, 2, 3, 5, 9, 15, 30, 45

6) Simplify. $\dfrac{2}{0}$

   A) $\dfrac{1}{2}$ B) 0   C) Undefined   D) 2

7) Simplify, if possible. $\dfrac{24}{56}$

   A) $\dfrac{8}{7}$ B) $\dfrac{24}{56}$ C) $\dfrac{3}{8}$ D) $\dfrac{3}{7}$

8) Find the LCM of the expressions. $6x^2y^2, \ x^3y$

   A) $36x^2y^3$ B) $6x^3y^2$ C) $13x^3y^2$ D) $36x^3y^2$

9) Use < or > for □ to write a true sentence. $\dfrac{-3}{8} \ \square \ \dfrac{-3}{4}$

   A) <   B) >

10) Add and, if possible, simplify. $\dfrac{-2}{8}x + \dfrac{5}{7}x$

A) $\dfrac{3}{56}x$ B) $\dfrac{3}{7}x$ C) $\dfrac{13}{28}x$ D) $\dfrac{26}{7}x$

11) Subtract and, if possible, simplify. $\dfrac{3}{5}x - \dfrac{1}{10}x$

A) $\dfrac{1}{5}x$ B) $\dfrac{7}{10}x$ C) $\dfrac{2}{5}x$ D) $\dfrac{1}{2}x$

12) Convert $6\dfrac{5}{6}$ to fraction notation.

A) $\dfrac{41}{6}$ B) $\dfrac{41}{5}$ C) $\dfrac{36}{6}$ D) $\dfrac{36}{5}$

13) Convert $\dfrac{34}{3}$ to mixed numeral.

A) $\dfrac{1}{3}$ B) $12\dfrac{1}{3}$ C) $11\dfrac{1}{3}$ D) $10\dfrac{1}{7}$

14) Add. Write a mixed numeral for the answer. $7\dfrac{1}{4} + 6\dfrac{5}{7}$

A) $12\dfrac{27}{28}$ B) $14\dfrac{27}{28}$ C) $13\dfrac{27}{28}$ D) $7\dfrac{27}{28}$

15) Multiply. Write a mixed numeral for the answer. $2\dfrac{1}{5} \cdot 3\dfrac{1}{4}$

A) $6\dfrac{11}{20}$ B) $-7\dfrac{3}{20}$ C) $6\dfrac{13}{20}$ D) $7\dfrac{3}{20}$

16) Divide. Write a mixed numeral for the answer whenever possible. $4\dfrac{2}{3} \div 1\dfrac{7}{8}$

A) $2\dfrac{22}{45}$ B) $3\dfrac{22}{45}$ C) $2\dfrac{1}{2}$ D) $2\dfrac{23}{45}$

17) Write the number 0.752 as a fraction. Do not simplify.

A) $\dfrac{752}{100}$ B) $\dfrac{75.2}{100}$ C) $\dfrac{752}{10,000}$ D) $\dfrac{752}{1000}$

18) Write the word name for the number. 907.18

A) Nine hundred seven and eighteen hundredths B) Nine hundred seventy and eighteen hundredths
C) Nine hundred seventy and eighteen thousandths D) Nine hundred seven and eighteen thousandths

19) Write decimal notation. $-\dfrac{64}{10}$

   A) -6.4   B) -0.64   C) -640   D) -0.064

20) Which number is larger?   -0.92 and -0.91
    A) -0.92   B) -0.91

21) Round 57.1716 to the nearest thousandth.

   A) 57.173   B) 57.172   C) 57.17   D) 57.171

22) Estimate 0.06 + 57.3 + 0.73 by rounding first to the nearest one.

   A) 58   B) 56   C) 59   D) 61

23) Estimate 15.9745 + 84.9732 by rounding first to the nearest tenth.

   A) 100.4   B) 101.2   C) 101.0   D) 100.7

24) The circle graph shows the percentage of students in a certain college who attend different
    sporting events.
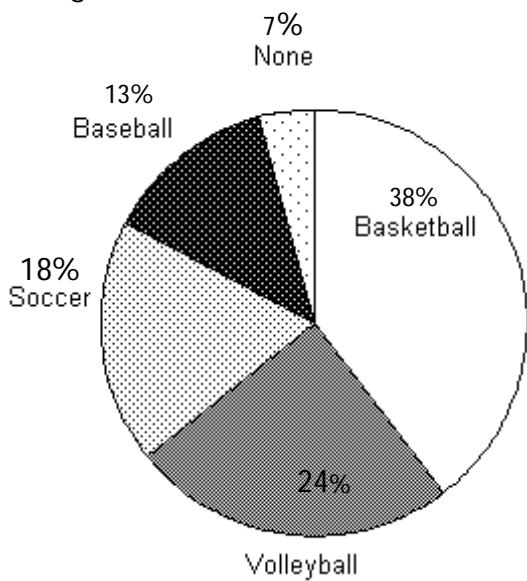
   What percentage of students do not attend Soccer or Basketball matches?

   A) 56 %   B) 44 %   C) 38 %   D) 18 %

25) Find the average of the following set of numbers.   67, 77, 53, 73, 50, 77, 51

   A) 77   B) 67   C) 64   D) 56

26) Find the median of the following set of numbers. 52, 72, 279, 250, 405, 471

   A) 279   B) 218.5   C) 264.5   D) 250

27) Find any modes that exist in the following set of numbers.. 5, 9, 97, 3, 2, 8, 23, 1, 4, 16

   A) 9   B) 16.2   C) 8   D) No mode

28) This pictograph shows projected sales of compact disks (CDs) for a popular rock band for seven consecutive years.

Year	Projected CD Sales
2013	⊙
2012	⊙⊙⊙⊙⊙
2011	⊙⊙⊙⊙⊙⊙⊙⊙⊙
2010	⊙⊙⊙⊙⊙⊙⊙⊙⊙⊙
2009	⊙⊙⊙⊙⊙
2008	⊙⊙⊙⊙⊙⊙⊙
2007	⊙⊙⊙

⊙ = 100,000 CDs

Approximately how many fewer CDs will be sold in 2009 than in 2011?

   A) 500,000 CDs   B) 400,000 CDs   C) 600,000 CDs   D) 4 CDs

29) Find the perimeter of the polygon.

6 m

3 m

17 m   14 m

21 m   18 m

12 m

21 m
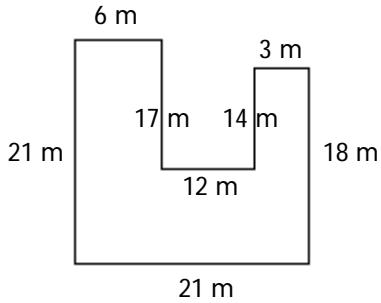
   A) 95 m   B) 84 m   C) 112 m   D) 98 m

30) Find the area of the parallelogram.

3 cm

3 cm
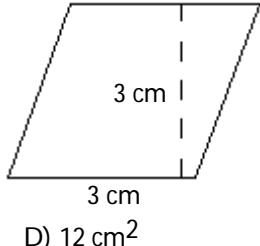
   A) 4.5 cm^2 B) 6 cm^2 C) 9 cm^2 D) 12 cm^2

31) Find the area of the triangle.
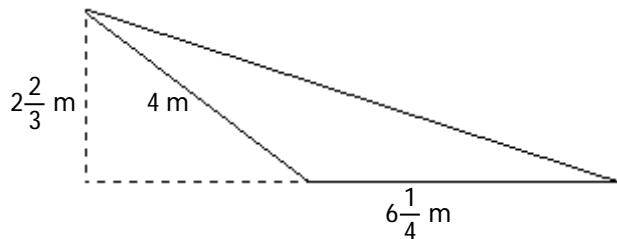
A) $12\frac{1}{2}$ m²

B) $16\frac{2}{3}$ m²

C) $8\frac{1}{3}$ m²

D) 25 m²

32) Find the area of a rectangle measuring 3.5 yd by 10.47 yd.

A) 12.25 yd²

B) 36.645 yd²

C) 13.97 yd²

D) 73.290 yd²

33) Evaluate -(-x) when x = -72

A) 0

B) -72

C) $-\frac{1}{72}$

D) 72

34) Evaluate $\frac{2x + 4y}{7}$, when x = 21 and y = 63

A) 15

B) 42

C) 10

D) 294

35) Translate the phrase to an algebraic expression.
"The quotient of x divided by eight"

A) 8 - x

B) $\frac{x}{8}$

C) 8x

D) 8 + x

36) Translate the phrase to an algebraic expression.
"Three times x increased by eight"

A) 8x + 3

B) 8x

C) 3x - 8

D) 3x + 8

37) Find an equivalent expression with the given denominator. $\frac{3}{5x} = \frac{?}{5xy}$

A) $\frac{15y}{5xy}$

B) $\frac{3y}{5xy}$

C) $\frac{y}{5xy}$

D) $\frac{3xy}{5xy}$

38) Multiply. 6(3x + 3y + 2)

A) 18x + 18y + 2

B) 18x + 3y + 12

C) 18x + 3y + 2

D) 18x + 18y + 12

39) Factor. 2m – 14n + 4

    A) 14(2m – n + 4)   B) 2(m – 14n + 4)   C) 2(m – 7n + 2)   D) 2(m – 7n + 4)

40) Factor. $5x^2 + 15x$

    A) x(5x + 15)   B) 5x(x + 3)   C) $5x^2(x + 3)$ D) 5x(x + 15)

41) Remove parentheses and simplify. –9(5r + 3) + 5(6r + 3)

    A) –15r + 3   B) –15r – 12   C) –72r   D) –4r – 6

42) Simplify. [5(x – 4) – 2] + [3(x – 1) + 3]

    A) 8x – 6   B) 8x – 2   C) 8x – 22   D) 5x – 25

43) Simplify. $\dfrac{64 - 3 \cdot 4}{4^3 \div 4^2 - (-4)^2}$

    A) $\dfrac{1}{12}$ B) $\dfrac{13}{5}$ C) $\dfrac{1}{8}$ D) $-\dfrac{13}{3}$

44) Simplify. $-12 - |-14 - 5|$

    A) 7   B) –31   C) 31   D) –7

45) Simplify. $17 + 14 \cdot 5 - (-9)$

    A) 146   B) 96   C) 45   D) 164

46) Decide if 3 is a solution to the equation 9x = 63

    A) Yes   B) No

47) Solve. $x - \dfrac{1}{2} = -\dfrac{2}{7}$

    A) $-\dfrac{3}{14}$ B) $-\dfrac{11}{14}$ C) $\dfrac{11}{14}$ D) $\dfrac{3}{14}$

48) Solve. 27 = x – 13

    A) –14   B) 14   C) 40   D) –40

49) Solve. 9y - 4 = 36 + y

    A) $\dfrac{16}{5}$ B) 5   C) 4   D) 4

50) Solve. 8x - (4x - 1) = 2

    A) $\dfrac{1}{4}$ B) $\dfrac{1}{12}$ C) $-\dfrac{1}{12}$ D) $-\dfrac{1}{4}$

51) Solve. 3(x + 6) - (3x + 18) = 0

    A) 6   B) No solution   C) All real numbers   D) 0

52) Solve. $V = \dfrac{1}{3}Bh$ for B

    A) $B = \dfrac{3V}{h}$ B) $B = \dfrac{V}{3h}$ C) $B = \dfrac{h}{3V}$ D) $B = \dfrac{3h}{V}$

53) Evaluate the formula P = 2L + 2W when L = 9 in. and W = 4 in.

    A) P = 13 in.   B) P = 72 in.   C) P = 26 in.   D) P = 144 in.

54) What is 5% of 300?

    A) 0.15   B) 15   C) 1.5   D) 150

55) 21 is 7% of what number?

    A) 30   B) 3000   C) 300   D) 147

56) What percent of 1945 is 24?

    A) 8104.2%   B) 22.3%   C) 12.3%   D) 1.2%

57) The sum of three consecutive even integers is 264. Find the integers.

    A) 81, 82, 83   B) 90, 92, 94   C) 86, 88, 90   D) 88, 90, 92

58) Solve.   -5a + 7 > -6a - 5

    A) {a| a > 2}   B) {a| a < -12}   C) {a| a > -12}   D) {a| a < 2}

59) Solve.   15x - 20 > 5(2x - 12)

   A) {x| x > -8}   B) {x| x ≤ -8}   C) {x| x < -8}   D) {x| x ≥ -8}

60) Determine whether the ordered pair (2, 2) is a solution of the equation   3x + y = 8.

   A) No   B) Yes

61) Find the coordinates of the x-intercept and the y-intercept, in that order.   -3x + 3y = -3

   A) (0, -1) (0, -6)   B) (1, -6) (-1, -3)   C) (1, 0) (0, -1)   D) (-1, 0) (-6, 0)

62) Graph the linear equation 2x - y = -2.
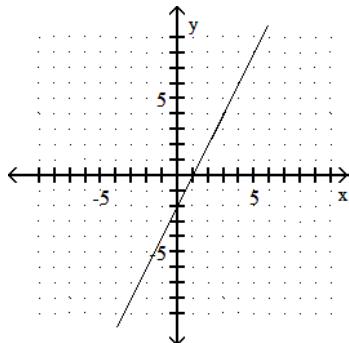
   A)   B)
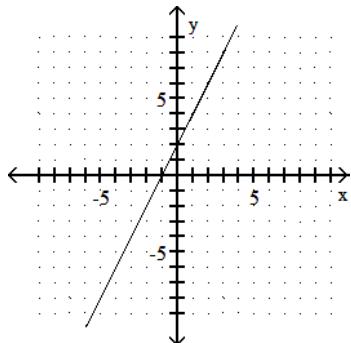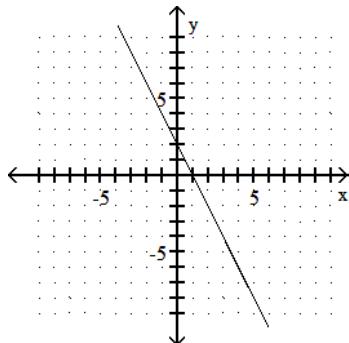
   C)   D)
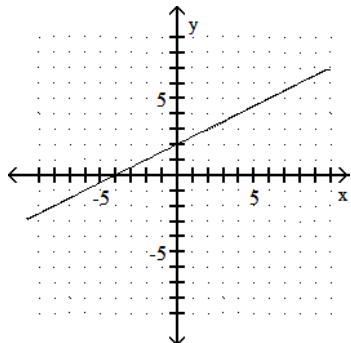
63) Find the slope of the line going through the pair of points. (-7, -9) and (9, -9)

   A) 4   B) -4   C) 1   D) 0

64) Find the slope and the y-intercept of the line.   -4x + 8y = 32

   A) Slope -2; y-intercept (0, 4)   B) Slope 2; y-intercept (0, -4)

   C) Slope $-\frac{1}{2}$; y-intercept (0, -4)   D) Slope $\frac{1}{2}$; y-intercept (0, 4)

65) Find the slope of the line.
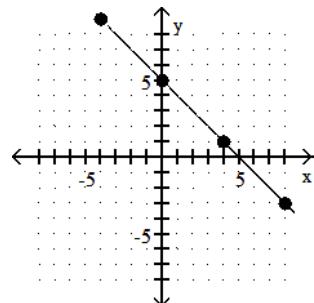
A) 1   B) -1   C) -5   D) 5

66) Graph.   x = 2

A)

B)

C)
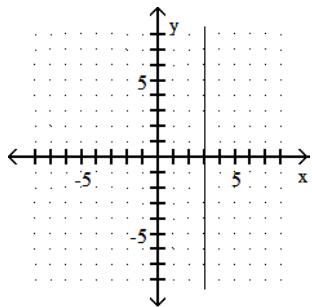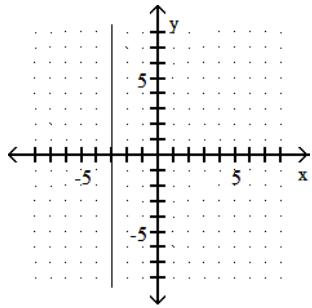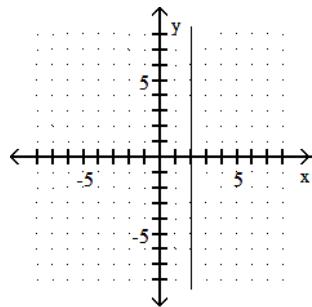
D)
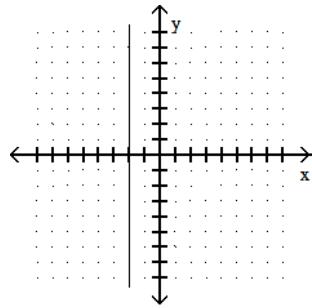
67) Write an equation for the graph.
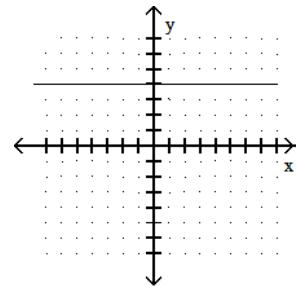
A) y = x + 8   B) y = 4   C) x = 4   D) y = x + 4

68) Find an equation of the line with slope 5 and y-intercept (0, -2).

A) y = 5x - 2   B) y = 5x + 5   C) y = 5x + 2   D) y = -2x - 5

69) Find an equation of the line containing the point (2, 3) and having the slope -4. Write the equation in slope-intercept form.

A) $y = -4x + 11$ 　　　B) $y = -\frac{1}{4}x + 11$ 　　　C) $y = -4x - 11$ 　　　D) $y = -4x + \frac{1}{11}$

70) Find an equation of the line that contains the pair of points (2, 0) and (-7, 5). Write the equation in slope-intercept form.

A) $y = \frac{1}{6}x + \frac{23}{6}$ 　　　B) $y = \frac{5}{9}x + \frac{10}{9}$ 　　　C) $y = -\frac{1}{6}x + \frac{23}{6}$ 　　　D) $y = -\frac{5}{9}x + \frac{10}{9}$

71) Determine whether the graphs of the equations are parallel lines, perpendicular lines, or neither.
$3x - 4y = 4$
$8x + 6y = 4$

A) Parallel 　　　　　　　B) Neither 　　　　　　　C) Perpendicular

72) Express using positive exponents. $\frac{1}{x^{-6}}$

A) $\frac{1}{x^6}$ 　　　B) x^{-6} 　　　C) $6x$ 　　　D) x^6

73) Evaluate. cd^0

A) 1 　　　B) cd 　　　C) c 　　　D) d

74) Divide and simplify. $\frac{y^{-11}}{y^2}$

A) $\frac{1}{y^{-9}}$ 　　　B) y^{13} 　　　C) y^9 　　　D) $\frac{1}{y^{13}}$

75) Multiply and simplify. $x \cdot x^{-8}$

A) $\frac{1}{x^7}$ 　　　B) x^9 　　　C) x^7 　　　D) $\frac{1}{x^9}$

76) Simplify. $(-5x^4y)^2$

A) $(-5)^2x^6y^2$ 　　　B) $-10x^4y$ 　　　C) $(-5)^2x^8y^2$ 　　　D) $-10x^4y^2$

77) Simplify. $\left(\dfrac{4}{b^{-2}}\right)^5$

A) $1024b^{10}$

B) $\dfrac{b^{10}}{1024}$

C) $\dfrac{1024}{b^{10}}$

D) $\dfrac{1}{1024b^{10}}$

78) Write the number in scientific notation.   302.01

A) 3.0201×10^1

B) 3.0201×10^2

C) 3.0201×10^{-2}

D) 3.0201×10^{-1}

79) Write the number in scientific notation.   0.000637

A) 6.37×10^{-4}

B) 6.37×10^4

C) 6.37×10^{-5}

D) 6.37×10^{-3}

80) Convert to decimal notation. 3.46×10^{-4}

A) 0.00346

B) 0.000346

C) -346,000

D) 0.0000346

81) Collect like terms and then arrange in descending order. $-4x^7 + 7x^9 - 3x^8 - 2x^7 + 8x^8 + 9x^9$

A) $15x^{48}$

B) $16x^9 + 5x^8 - 6x^7$

C) $16x^{18} + 5x^{16} - 6x^{14}$

D) $11x^9 + 11x^8 + 15x^7$

82) Identify the degree of he polynomial. $2x^5 - 6x^2 + 9 - 8x^3$

A) 7

B) 3

C) 10

D) 5

83) Identify the degree of he polynomial. $15x^8yz - 4x^6y^2 + x^5yz^3$

A) 6

B) 5

C) 10

D) 8

84) Evaluate the polynomial. $-2x^2 - y^2 + xy$ for $x = -2$ and $y = 4$

A) 0

B) -32

C) 16

D) -16

85) Add. $(3 + 9x^5 + 9x^2) + (2x^5 - 4x^2 + 8)$

A) $27x^7$

B) $5x^5 + 5x^2 + 17$

C) $11 + 5x^5 + 11x^2$

D) $11x^5 + 5x^2 + 11$

86) Subtract. $(6x + 5x^6 - 19x^4) - (-16x^4 + 3x^6 + 13x)$

A) $2x^6 - 3x^4 + 19x$

B) $2x^6 - 16x^4 + 19x$

C) $-8x^{11}$

D) $2x^6 - 3x^4 - 7x$

87) Multiply. $(-6x^2)(5x^3)$

 A) $11x^6$ B) $-30x^5$ C) $-30x^6$ D) $11x^5$

88) Multiply. $6x^2(-9x + 7)$

 A) $-54x + 42$ B) $-54x^3 + 42x^2$ C) $-54x^3 + 7$ D) $-12x^2$

89) Multiply. $(2x - 4)(x - 9)$

 A) $x^2 + 36x - 22$ B) $2x^2 + 3x + 36$ C) $x^2 - 22x + 3$ D) $2x^2 - 22x + 36$

90) Multiply. $(x - 3)(7x^2 + x + 9)$

 A) $7x^3 - 22x^2 + 6x - 27$ B) $7x^3 + 20x^2 + 6x - 27$
 C) $7x^3 - 20x^2 + 6x - 27$ D) $7x^3 - 20x^2 + 12x - 27$

91) Multiply. $(x^2 - 8)^2$

 A) $x^4 + 64$ B) $x^4 - 8x^2 + 64$ C) $x^4 - 16x^2 + 64$ D) $x^4 - 8x + 64$

92) Decide whether or not the ordered pair is a solution of the system. $(-3, -2)$
 $2x = 4 - y$
 $4x = 8 - 2y$

 A) Yes   B) No

93) Solve.
 $x + y = 2$
 $x - y = 16$

 A) $(-9, -6)$ B) $(8, -6)$ C) $(9, -7)$ D) No solution

94) Simplify. $-\sqrt{49}$

 A) Not a real number B) -24 C) -8 D) -7

95) Simplify. Remember that we have assumed that radicands do not represent the square of a
 negative number. $\sqrt{4x^2}$

 A) $4x$ B) $2x^2$ C) $2x$ D) $-2x$

96) Simplify. $\sqrt{(z-5)^2}$

A) $z - \sqrt{5}$ B) $z - 5$ C) $(z-5)^2$ D) $\sqrt{z} - 5$

97) Factor. $x^2 - 8x - 20$

A) $(x - 2)(x + 10)$ B) Prime   C) $(x - 2)(x + 1)$ D) $(x + 2)(x - 10)$

98) Solve. $\dfrac{7}{x} = \dfrac{3}{x} + 3$

A) $\dfrac{3}{4}$ B) $\dfrac{2}{5}$ C) $\dfrac{4}{3}$ D) $\dfrac{3}{10}$

1) B
2) B
3) B
4) A
5) C
6) C
7) D
8) B
9) B
10) C
11) D
12) A
13) C
14) C
15) D
16) A
17) D
18) A
19) A
20) B
21) B
22) A
23) C
24) B
25) C
26) C
27) D
28) B
29) C
30) C
31) C
32) B
33) B
34) B
35) B
36) D
37) B
38) D
39) C
40) B
41) B
42) C
43) D
44) B
45) B
46) B
47) D
48) C
49) B
50) A
51) C

52) A
53) C
54) B
55) C
56) D
57) C
58) C
59) A
60) B
61) C
62) B
63) D
64) D
65) B
66) B
67) B
68) A
69) A
70) D
71) C
72) D
73) C
74) D
75) A
76) C
77) A
78) B
79) A
80) B
81) B
82) D
83) C
84) B
85) D
86) D
87) B
88) B
89) D
90) C
91) C
92) B
93) C
94) D
95) C
96) B
97) D
98) C