Math 0310 Final Exam Review

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Solve the linear equation and check the solution.

1) $13(x - 52) = 26$ 1) _____

A) {26} B) {52} C) {50} D) {54}

Objective: (2.2) Solve Linear Equation (Grouping Symbols)

2) $2(6x + 8) = 4(2x + 12)$ 2) _____

A) {8} B) {16} C) {-4} D) {4}

Objective: (2.2) Solve Linear Equation (Grouping Symbols)

3) $-7x + 3(2x - 4) = -9 - 4x$ 3) _____

A) $\{-7\}$ B) {- 1} C) $\left\{\frac{21}{5}\right\}$ D) {1}

Objective: (2.2) Solve Linear Equation (Grouping Symbols)

4) $9x + 5(-2x - 5) = -18 - 8x$ 4) _____

A) $\left\{\frac{43}{9}\right\}$ B) {1} C) $\left\{-\frac{43}{7}\right\}$ D) {- 1}

Objective: (2.2) Solve Linear Equation (Grouping Symbols)

5) $7.3p - 22 = 6.3p - 11$ 5) _____

A) {12} B) {-5} C) {11} D) {10}

Objective: (2.2) Solve Linear Equation (Decimals)

6) $-7q + 1.0 = -24.5 - 1.9q$ 6) _____

A) {-31} B) {3.6} C) {3.9} D) {5}

Objective: (2.2) Solve Linear Equation (Decimals)

7) $-0.05(60) + 0.6x = 0.3(60 + x)$ 7) _____

A) {70} B) {60} C) {35} D) {80}

Objective: (2.2) Solve Linear Equation (Decimals)

8) $\frac{5}{2}x + \frac{8}{3} = \frac{7}{3}x$ 8) _____

A) {30} B) {-16} C) {-30} D) {16}

Objective: (2.2) Solve Linear Equation (Fractions)

9) $\frac{7}{3} - \frac{x}{3} = \frac{x}{4}$ 9) _____

A) {4} B) {-4} C) $\left\{\frac{28}{5}\right\}$ D) {7}

Objective: (2.2) Solve Linear Equation (Fractions)

10) $\frac{r+6}{5} = \frac{r+8}{7}$ 10) _____

A) {-2} B) {1} C) {-1} D) {2}

Objective: (2.2) Solve Linear Equation (Fractions)

Determine whether the linear equation is an identity or an inconsistent equation. State the solution set using set notation.

11) $-8x + 3 + 6x = -2x + 8$ 11) _____

A) { } or $\emptyset$ B) {-3} C) {5} D) $\{x \mid x \in \mathcal{R}\}$

Objective: (2.2) Identify Inconsistent Equations and Identities

12) $22x + 11(x + 1) = 33(x + 1) - 22$ 12) _____

A) { } or $\emptyset$ B) $\{x \mid x \in \mathcal{R}\}$ C) {1} D) {0}

Objective: (2.2) Identify Inconsistent Equations and Identities

Solve for the indicated variable.

13) $17x + 3y = 13$, for y 13) _____

A) $y = \frac{17}{3}x - \frac{13}{3}$ B) $y = 17x - 13$ C) $y = -\frac{17}{3}x + \frac{13}{3}$ D) $y = \frac{17}{3}x + \frac{13}{3}$

Objective: (2.3) Solve Literal Equation for Variable

14) $A = P(1 + rt)$, for t 14) _____

A) $t = \frac{Pr}{A - P}$ B) $t = \frac{A - P}{Pr}$ C) $t = \frac{A}{r}$ D) $t = \frac{P - A}{Pr}$

Objective: (2.3) Solve Literal Equation for Variable

15) $A = \frac{1}{2}h(a + b)$, for a 15) _____

A) $a = \frac{2A - hb}{h}$ B) $a = \frac{hb - 2A}{h}$ C) $a = \frac{A - hb}{2h}$ D) $a = \frac{2Ab - h}{h}$

Objective: (2.3) Solve Literal Equation for Variable

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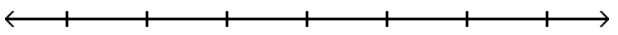
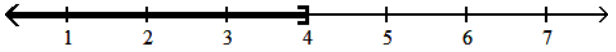
Solve the linear inequality and graph the solution set. State the solution using interval notation.

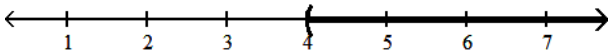
16) $7x > 28$ 16) _____



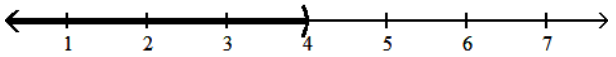
A) $(-\infty, 4]$



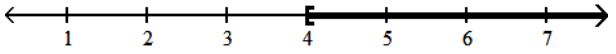
B) $(4, \infty)$



C) $(-\infty, 4)$

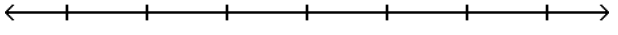


D) $[4, \infty)$

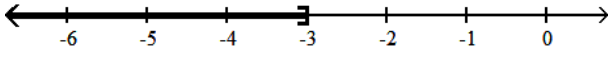


Objective: (2.4) Solve and Graph Linear Inequality

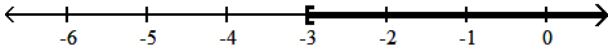
17) $-7x \geq 21$ 17) _____



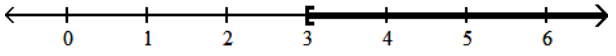
A) $(-\infty, -3]$



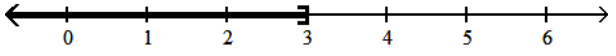
B) $[-3, \infty)$



C) $[3, \infty)$



D) $(-\infty, 3]$



Objective: (2.4) Solve and Graph Linear Inequality

Solve the linear inequality and state the solution set using interval notation, if applicable.

18) $9x - 8 \leq 4x - 12$ 18) _____

A) $(-\infty, 5]$ B) $\left(-\infty, -\frac{4}{5}\right)$ C) $[-4, \infty)$ D) $\left(-\infty, -\frac{4}{5}\right]$

Objective: (2.4) Solve Linear Inequality

Determine if the ordered pair is a solution to the equation.

19) (0, 7) $10x - 8y = 56$ 19) _____

A) yes B) no

Objective: (3.1) Determine if Ordered Pair Is Solution to Equation

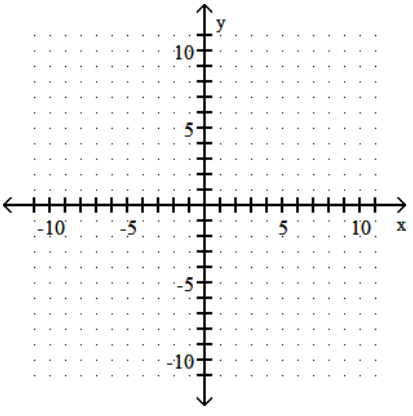
20) (2, 0) $6y + 4x = 8$ 20) _____

A) no B) yes

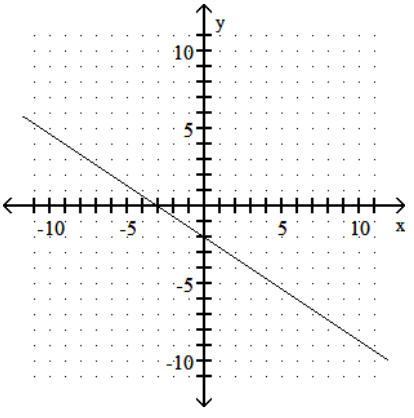
Objective: (3.1) Determine if Ordered Pair Is Solution to Equation

Use the intercept method to graph the solutions of the linear equation.

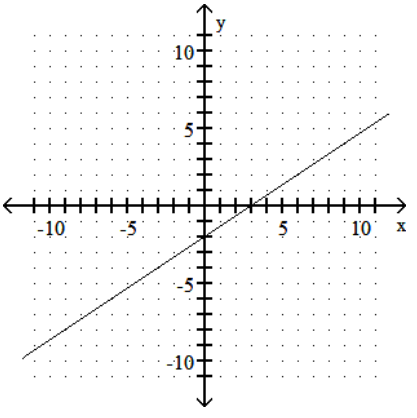
21) $2x - 3y = 6$ 21) _____



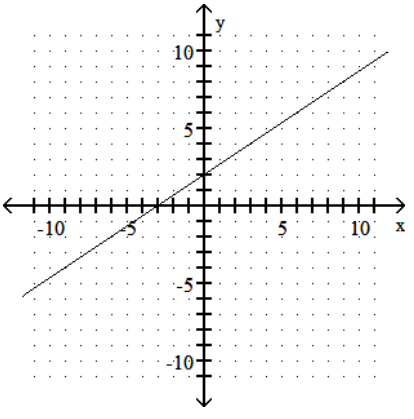
A)



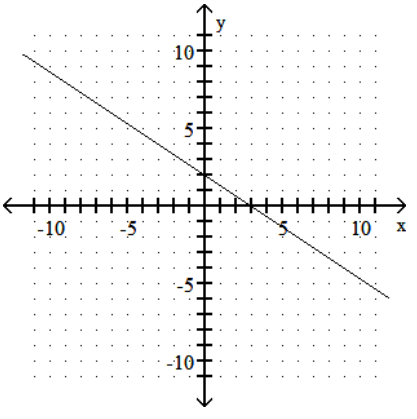
B)



C)

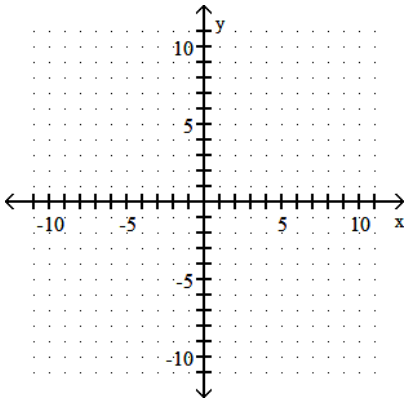


D)

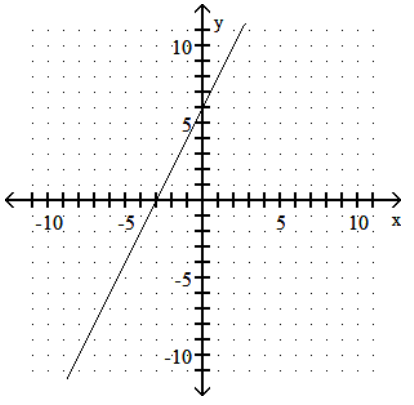


Objective: (3.2) Graph Linear Equation Using Intercept Method

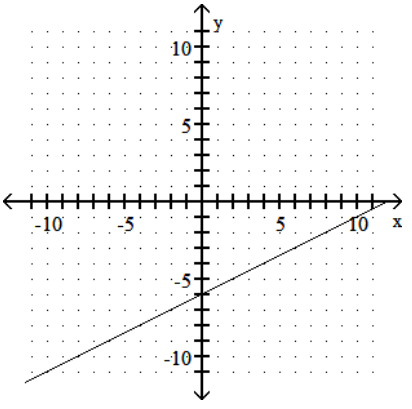
22) y = 2x - 6 22) _____



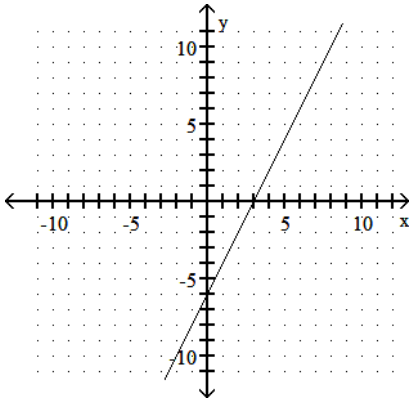
A)



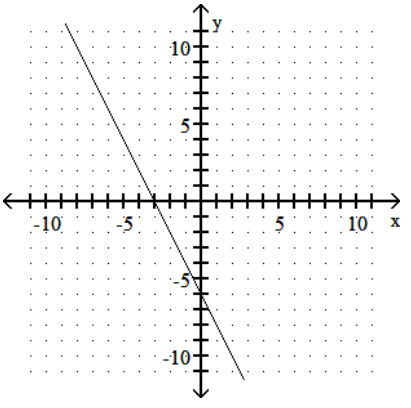
B)



C)



D)



Objective: (3.2) Graph Linear Equation Using Intercept Method

Find the slope of the straight line through the two solution points.

23) (8, 3) and (-4, 4) 23) _____

A) $m = -\frac{5}{8}$ B) $m = -12$ C) $m = -\frac{1}{12}$ D) $m = -\frac{8}{5}$

Objective: (3.3) Find Slope of Line Given Two Points

Find the slope and the y-intercept by using the slope-intercept form of the equation of the line. If necessary, solve for y first.

24) $y = 4x - 5$ 24) _____

A) m = -5, (0, 4) B) m = 5, (0, 4) C) m = 4, (0, -5) D) m = 4, (0, 5)

Objective: (3.3) Find Slope and y-Intercept Given Equation

25) $-2x + 5y = 5$ 25) _____

A) m = -2, (0, 1) B) $m = \frac{2}{5}$, (0, 1) C) $m = -\frac{2}{5}$, (0, -1) D) m = 2, (0, -1)

Objective: (3.3) Find Slope and y-Intercept Given Equation

Write the equation of the line having the given slope and passing through the given point.

26) m = 3, (-3, 6) 26) _____

A) y = 3x - 15 B) x = 3y + 15 C) x = 3y - 15 D) y = 3x + 15

Objective: (3.4) Write Equation of Line Given Slope and Point

Determine if the pair of lines is parallel, perpendicular, or neither.

27) $y = 6x - 8$ 27) _____

$y = -\frac{1}{6}x - 1$

A) perpendicular B) parallel C) neither

Objective: (3.4) Determine if Lines Are Parallel, Perpendicular, or Neither

28) $y = 9x - 6$ 28) _____

$y = 9x + 4$

A) perpendicular B) parallel C) neither

Objective: (3.4) Determine if Lines Are Parallel, Perpendicular, or Neither

29) $y = 5x - 4$ 29) _____

$y = -5x - 8$

A) parallel B) perpendicular C) neither

Objective: (3.4) Determine if Lines Are Parallel, Perpendicular, or Neither

30) $2y = -x + 6$ 30) _____

$x + 2y = -10$

A) perpendicular B) parallel C) neither

Objective: (3.4) Determine if Lines Are Parallel, Perpendicular, or Neither

Evaluate the function at the given value of the independent variable. State the answer as an ordered pair.

31) $f(x) = -2x + 20$; f(9) 31) _____

A) (9, 2) B) (9, -40) C) (9, 5) D) (9, 20)

Objective: (3.6) Evaluate Function

32) $f(x) = 3x^2 + 4x - 1$; f(-3) 32) _____

A) (-3, 16) B) (-3, 38) C) (-3, 14) D) (-3, -4)

Objective: (3.6) Evaluate Function

33) $f(x) = |x + 4|$; $f(6)$ 33) _____

A) (6, 6) B) (6, 10) C) (6, -10) D) (6, -4)

Objective: (3.6) Evaluate Function

34) $h(x) = \frac{x^2 - 3}{x}$; $h(3)$ 34) _____

A) (3, 4) B) (3, 2) C) (2, 3) D) (3, 1)

Objective: (3.6) Evaluate Function

Solve the system of linear equations using the Substitution Method.

35) $\begin{cases} x + 2y = 9 \\ 2x + 6y = 12 \end{cases}$ 35) _____

A) {(x, y)| x + 2y = 9} B) { }

C) {(3, 3)} D) {(15, -3)}

Objective: (4.2) Solve System of Linear Equations Using Substitution

36) $\begin{cases} x + 3y = 7 \\ 3x + 9y = 21 \end{cases}$ 36) _____

A) {(18, -3)} B) {(0, 3)}

C) {(x, y)| x + 3y = 7} D) { }

Objective: (4.2) Solve System of Linear Equations Using Substitution (Inconsistent/Dependent)

37) $\begin{cases} 8x - 4y = 8 \\ 2x - y = 5 \end{cases}$ 37) _____

A) {(x, y)| 8x - 4y = 8} B) {(4, -3)}

C) {(-4, 13)} D) { }

Objective: (4.2) Solve System of Linear Equations Using Substitution (Inconsistent/Dependent)

Solve the system of linear equations using the Elimination Method.

38) $\begin{cases} 3x - 4y = 6 \\ 4x - 4y = 4 \end{cases}$ 38) _____

A) {(-2, -3)} B) {(x, y)| 3x - 4y = 6}

C) { } D) {(2, 0)}

Objective: (4.3) Solve System of Linear Equations Using Elimination

Set up a system of two equations and solve by any method.

39) Find two integers whose sum is -8 and whose difference is 6. 39) _____

A) - 4 and - 10 B) - 3 and - 5 C) - 1 and - 7 D) -8 and 2

Objective: (4.5) Solve Application

40) Find two numbers such that the first is four more than the second and two times the first is 6 more than four times the second. 40) _____

A) 4 and 0 B) 5 and 1 C) 6 and 2 D) - 7 and - 11

Objective: (4.5) Solve Application

41) Adam has 63 dimes and nickels. The total value of the coins is $5.00. Find the number of each type of coin. 41) _____

A) 31 nickels and 32 dimes
B) 37 nickels and 26 dimes
C) 28 nickels and 35 dimes
D) 26 nickels and 37 dimes

Objective: (4.5) Solve Application

Simplify the expression using the product-to-a-power rule. Write the answer in lowest terms with positive powers only. Assume that all variables represent nonzero real numbers.

42) $(4x^8y^{-5}z)^{-4}$ 42) _____

A) $4x^8y^{20}z^4$
B) $\frac{1}{256x^{32}y^{20}z^4}$
C) $\frac{-16y^{20}}{x^{32}z^4}$
D) $\frac{y^{20}}{256x^{32}z^4}$

Objective: (5.1) Simplify Using Product-to-Power Rule

Simplify the expression using the quotient-to-a-power rule. Write the answer in lowest terms with positive powers only. Assume that all variables represent nonzero real numbers.

43) $\left(\frac{5x^3y^4}{7z^8}\right)^2$ 43) _____

A) $\frac{25x^5y^6}{49z^{10}}$
B) $\frac{25x^6y^8}{7z^{10}}$
C) $\frac{25x^6y^8}{49z^{16}}$
D) $\frac{25x^6y^6}{49z^{16}}$

Objective: (5.1) Simplify Using Quotient-to-Power Rule

44) $\left(\frac{2x^3y^{-3}}{x^{-3}y^2}\right)^{-5}$ 44) _____

A) $\frac{y^{25}}{2x^{30}}$
B) $\frac{y^{25}}{32x^{30}}$
C) $\frac{2x^{30}}{y^{25}}$
D) $\frac{y^{25}}{2x^6}$

Objective: (5.1) Simplify Using Quotient-to-Power Rule

Add. Write the sum in descending powers of the variable.

45) $(9b + 4) + (b^2 - b - 5)$ 45) _____

A) $b^2 + 8b - 1$
B) $9b - 1$
C) $9b + 9$
D) $b^2 + 8b + 9$

Objective: (5.3) Add Polynomials

Subtract. Write the difference in descending powers of the variable.

46) $(7x^2 - 3x + 20) - (4x^2 + 5x - 40)$ 46) _____

A) $3x^2 - 8x - 20$
B) $3x^2 + 8x + 60$
C) $3x^2 - 8x + 60$
D) $3x^2 + 8x - 60$

Objective: (5.3) Subtract Polynomials

Multiply using the Distributive Property.

47) $(4x + 5)(-2x - 1)$ 47) _____

A) $2x^2 - 14x - 14$
B) $-8x^2 - 14x - 14$
C) $2x^2 - 14x - 5$
D) $-8x^2 - 14x - 5$

Objective: (5.4) Multiply Binomial by Binomial

Math 0310 Final Exam Review

Multiply.

48) $(x + 1)(x^2 - x + 1)$ 48) _____

A) $x^3 - 1$ B) $x^3 - 2x^2 - 2x - 1$

C) $x^3 + 2x^2 + 2x + 1$ D) $x^3 + 1$

Objective: (5.4) Multiply Polynomial by Polynomial

Square using special products.

49) $(9a - 11)^2$ 49) _____

A) $9a^2 - 198a + 121$ B) $81a^2 + 121$

C) $9a^2 + 121$ D) $81a^2 - 198a + 121$

Objective: (5.5) Square Binomial

Use the special product of a sum and difference of two terms to multiply the binomials.

50) $(12a + 7b)(12a - 7b)$ 50) _____

A) $12a^2 - 7b^2$ B) $144a^2 - 49b^2$

C) $144a^2 - 168ab - 49b^2$ D) $144a^2 + 168ab - 49b^2$

Objective: (5.5) Multiply Sum and Difference of Two Terms

Divide using long division. Write answer as Quotient + $\frac{\text{Remainder}}{\text{Divisor}}$.

51) $(5x^2 - 11x - 1) \div (x - 3)$ 51) _____

A) $5x + 4 - \frac{11}{x - 3}$ B) $5x - 4 + \frac{11}{x - 3}$ C) $5x + 4 + \frac{11}{x - 3}$ D) $5x + 4$

Objective: (5.6) Divide Using Long Division (Remainder)

Factor by grouping.

52) $r^2 - 8r + rt - 8t$ 52) _____

A) $rt(r - 8)$ B) $(r + 8)(r - t)$ C) $(r - 8)(r + t)$ D) $(r - 8)(r - t)$

Objective: (6.1) Factor by Grouping

Factor, if possible, using the difference or sum of squares. If a polynomial is not factorable, write "prime."

53) $4k^2 - 121m^2$ 53) _____

A) $(2k - 11m)^2$ B) $(2k + 11m)(2k - 11m)$

C) $(2k + 11m)^2$ D) prime

Objective: (6.2) Factor Sum or Difference of Squares

Factor using the sum or difference of cubes.

54) $27x^3 - 8$ 54) _____

A) $(3x - 2)(9x^2 + 4)$ B) $(3x - 2)(9x^2 + 6x + 4)$

C) $(27x - 2)(x^2 + 6x + 4)$ D) $(3x + 2)(9x^2 - 6x + 4)$

Objective: (6.2) Factor Sum or Difference of Cubes

55) $27a^3 + 64b^3$ 55) _____

A) $(3a - 4b)(9a^2 + 12ab + 16b^2)$ B) $(3a + 4b)(9a^2 - 12ab + 16b^2)$

C) $(3a + 4b)(9a^2 + 16b^2)$ D) $(27a + 4b)(a^2 - 12ab + 16b^2)$

Objective: (6.2) Factor Sum or Difference of Cubes

Factor the polynomial completely using the general factoring strategy. If the polynomial is not factorable, write "prime."

56) $x^2 - 3x - 88$ 56) _____

A) prime B) $(x + 8)(x - 11)$ C) $(x - 8)(x + 11)$ D) $(x - 88)(x + 1)$

Objective: (6.5) Factor Trinomial

Solve the equation using the Zero Factor Property and state the solution set.

57) $x^2 - x = 6$ 57) _____

A) {2, 3} B) {1, 6} C) {-2, -3} D) {-2, 3}

Objective: (6.6) Solve Equation Using Zero Factor Property (Equation ≠ 0)

58) $20b^2 + 23b - 6 = -12$ 58) _____

A) $\left\{\frac{4}{3}, \frac{5}{2}\right\}$ B) $\left\{-\frac{3}{4}, -\frac{2}{5}\right\}$ C) $\left\{-\frac{4}{3}, -\frac{2}{5}\right\}$ D) $\left\{\frac{3}{4}, \frac{2}{5}\right\}$

Objective: (6.6) Solve Equation Using Zero Factor Property (Equation ≠ 0)

Divide the rational expressions and write the answer in lowest terms.

59) $\frac{m^2 - 4}{m^2 + 6m - 16} \div \frac{m^2 - 6m - 16}{m - 2}$ 59) _____

A) $\frac{m - 2}{m - 8}$ B) $\frac{m - 2}{m^2}$ C) $\frac{m - 2}{(m + 8)(m - 8)}$ D) $\frac{m + 2}{(m + 8)(m - 8)}$

Objective: (7.2) Divide Rational Expressions

Add or subtract the rational expressions with common denominators. Write the answer in lowest terms.

60) $\frac{y^2 + 15y}{y + 14} + \frac{y^2 + 13y}{y + 14}$ 60) _____

A) $\frac{2y^2 + 15y}{y + 14}$ B) $2y$ C) y D) $2y^2$

Objective: (7.3) Add or Subtract with Common Denominator

Answer Key
Testname: REVIEW_D

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

51) C
52) C
53) B
54) B
55) B
56) B
57) D
58) B
59) C
60) B