Geometry 1 - Mr. C.   Name_____

Practice for Semester 2 Exam

Date_____ Period_____

Find the circumference of each circle (exact).

1) radius = 12 cm

   A) 24π cm   B) 22π cm

   C) 20π cm   D) 16π cm

2) radius = 9 yd

   A) 22π yd   B) 16π yd

   C) 20π yd   D) 18π yd

Find the area of each circle (exact).

3) radius = 8 cm

   A) 100π cm²   B) 16π cm²

   C) 64π cm²   D) 49π cm²

4) radius = 4 in

   A) 9π in²   B) 16π in²

   C) 25π in²   D) 36π in²

Find the lateral area of each figure. Round your answers to the nearest whole, if necessary.

5)

10 in

8 in
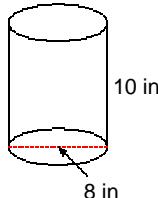
   A) 294 in²   B) 251 in²

   C) 503 in²   D) 298 in²

Find the surface area of each figure. Round your answers to the nearest tenth, if necessary.

6)

8 km   7 km   10 km   6 km
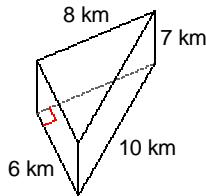
   A) 192 km²   B) 315 km²

   C) 204 km²   D) 216 km²

7)

10 yd   10 yd   4 yd   10 yd   10 yd
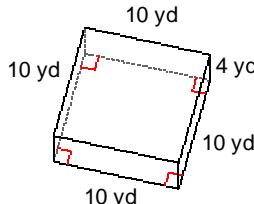
   A) 360 yd²   B) 260 yd²

   C) 384 yd²   D) 306 yd²

8)

4 in

8 in
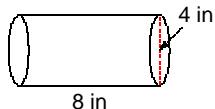
   A) 125.7 in²   B) 301.6 in²

   C) 179.7 in²   D) 83.4 in²

Use the information provided to write the equation of each circle.

9) Ends of a diameter: $(5, 4)$ and $(-17, -2)$

   A) $(x - 1)^2 + (y - 6)^2 = 130$
   B) $(x + 6)^2 + (y - 1)^2 = 130$
   C) $(x + 6)^2 + y^2 = 130$
   D) $(x + 1)^2 + (y + 6)^2 = 16900$

10) Ends of a diameter: $(-5, 13)$ and $(11, -9)$

   A) $(x + 3)^2 + (y + 2)^2 = 185$
   B) $(x - 3)^2 + (y - 2)^2 = 185$
   C) $(x + 1)^2 + (y - 3)^2 = 169$
   D) $(x - 3)^2 + (y + 2)^2 = 185$

11) Ends of a diameter: $(6, -10)$ and $(0, -4)$

   A) $(x + 7)^2 + (y + 3)^2 = 18$
   B) $(x - 3)^2 + (y + 7)^2 = 18$
   C) $(x + 3)^2 + (y + 7)^2 = 324$
   D) $(x - 8)^2 + (y - 2)^2 = 18$

12) Ends of a diameter: $(-5, 1)$ and $(-15, 7)$

   A) $(x - 10)^2 + (y + 4)^2 = 34$
   B) $(x + 10)^2 + (y - 4)^2 = 1$
   C) $(x - 10)^2 + (y - 4)^2 = 34$
   D) $(x + 10)^2 + (y - 4)^2 = 34$

Write the slope-intercept form of the equation of the line described.

13) through: $(2, 1)$, parallel to $y = \frac{1}{2}x - 5$

   A) $y = -x$ B) $y = \frac{1}{2}x$
   C) $y = -4x$ D) $y = 4x$

14) through: $(-1, -5)$, perp. to $y = -\frac{1}{6}x + 1$

   A) $y = x + 6$ B) $y = -3x + 6$
   C) $y = 6x - 3$ D) $y = 6x + 1$

15) through: $(-1, 1)$, parallel to $y = -x + 1$

   A) $y = -2x - 1$ B) $y = 2x - 1$
   C) $y = -x$ D) $y = -1$

16) through: $(-4, -2)$, perp. to $y = -\frac{4}{3}x + 2$

   A) $y = \frac{1}{4}x + 1$ B) $y = x + 1$
   C) $y = -x + 1$ D) $y = \frac{3}{4}x + 1$

17) through: $(-4, 4)$, perp. to $y = x$

   A) $y = x - 1$ B) $y = -x$
   C) $y = -x - 1$ D) $y = -1$

Find the area of each regular polygon. Round your answer to the nearest tenth if necessary.

18) hexagon
   apothem = 6.9
   side = 8

   A) 165.6   B) 261
   C) 374.4   D) 500.4

Find the volume of each figure. Round your answers to the nearest thousandth, if necessary.

19) A cylinder with a diameter of 6 cm and a height of 10 cm.

   A) 369.6 cm³   B) 282.74 cm³
   C) 329.97 cm³   D) 1130.97 cm³

20) A rectangular prism measuring 2 ft and 11 ft along the base and 3 ft tall.

   A) 43 ft³   B) 56 ft³
   C) 59 ft³   D) 66 ft³

21) A square prism measuring 11 in along each edge of the base and 12 in tall.

   A) 765 in³   B) 1033 in³

   C) 1189 in³   D) 1452 in³

22) A cylinder with a radius of 9 in and a height of 8 in.

   A) 1785.18 in³   B) 1980.43 in³

   C) 2035.75 in³   D) 1340.52 in³

Find the surface area of each figure. Round your answers to the nearest whole, if necessary. Leave your answers in terms of p for answers that contain p.

23)
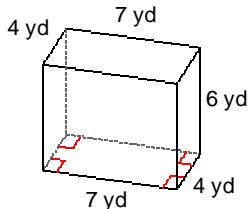
   A) 215 yd²   B) 121 yd²

   C) 188 yd²   D) 160 yd²

24)
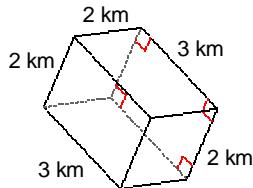
   A) 26 km²   B) 43 km²

   C) 32 km²   D) 25 km²

25)

   A) 207π yd²   B) 137π yd²

   C) 154π yd²   D) 168π yd²

26)

   A) 1728π m²   B) 576π m²
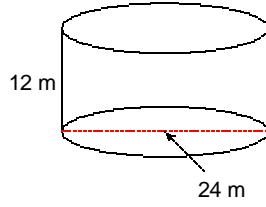
   C) 812π m²   D) 408π m²

Find the volume of each figure. Round your answers to the nearest whole, if necessary. Leave your answers in terms of p for answers that contain p.

27)
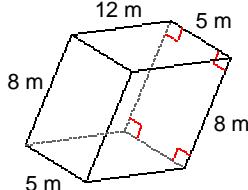
   A) 438 m³   B) 480 m³

   C) 325 m³   D) 388 m³

28)

   A) 437π ft³   B) 424π ft³
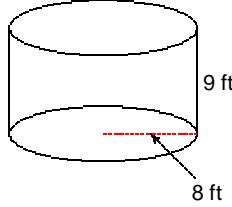
   C) 576π ft³   D) 397π ft³

Find the missing side of each triangle. Leave your answers in simplest radical form.

29)

   A) $\sqrt{46}$ B) $\sqrt{55}$

   C) $\sqrt{73}$ D) $\sqrt{119}$
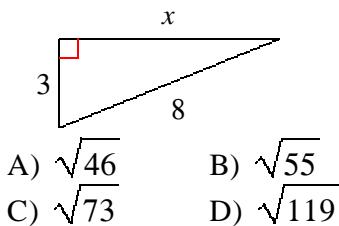
Classify each triangle by its angles and sides.

30)

25.2 /23°| 23.2

67° □

9.8
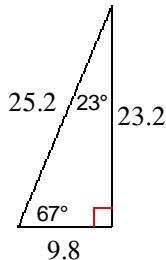
A) right isosceles

B) equilateral

C) right scalene

D) obtuse isosceles

31)

2.6   126°   2.6

27°   27°

4.6
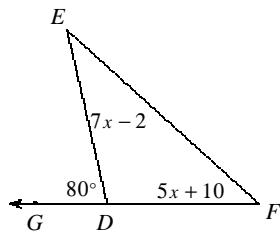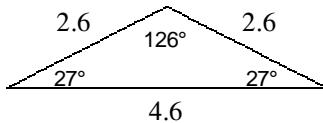
A) obtuse isosceles

B) acute isosceles

C) right isosceles

D) obtuse scalene

Solve for x.

32)

E

$7x - 2$

80° $5x + 10$

G D F

A) 6   B) 10

C) 15   D) 13

33)

$x + 126$

120°
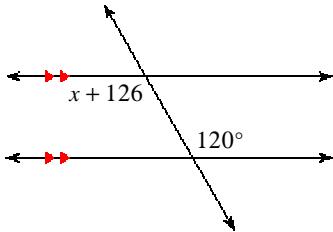
A) 8   B) −5

C) −6   D) 9

Sketch the graph of each line.

34) $y = 5$

A)
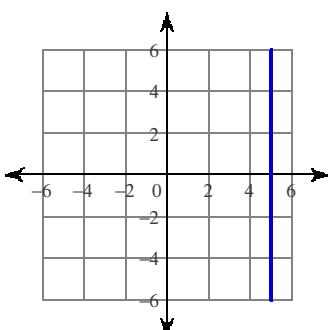
B)
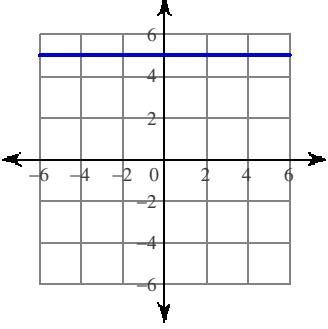

C)
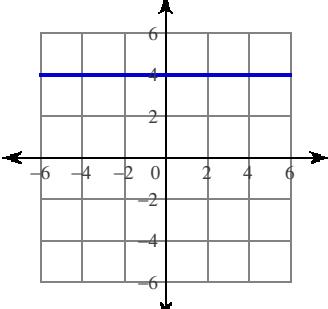
D)
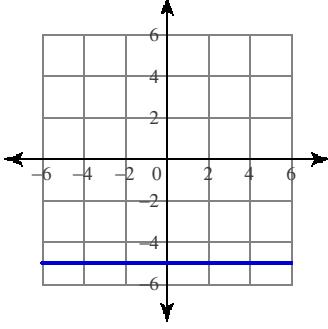
35) $y = 4x + 3$

A)
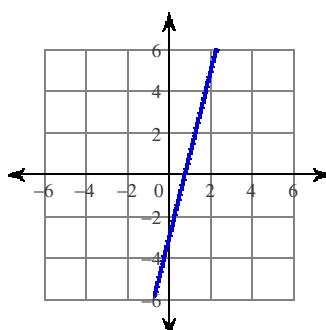
B)
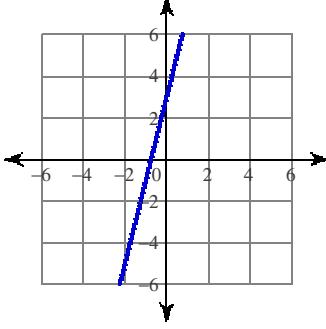
C)
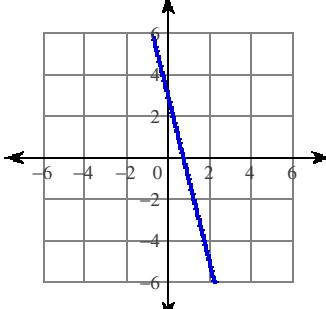
D)
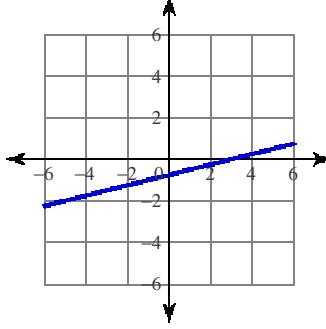
Find the distance between each pair of points.

36) $(-5, 3), (0, 1)$

A) 3 B) $\sqrt{29}$

C) $\sqrt{7}$ D) $\sqrt{41}$

37) $\left(1\frac{1}{2}, \frac{1}{2}\right), \left(0, -2\frac{1}{2}\right)$

A) $\dfrac{3\sqrt{2}}{2}$ B) $2\dfrac{1}{2}$

C) $\dfrac{3\sqrt{5}}{2}$ D) $\dfrac{\sqrt{14}}{2}$

Identify each pair of angles as corresponding, alternate interior, alternate exterior, or consecutive interior.

38)
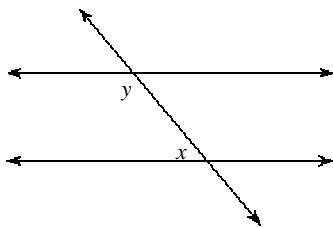
A) alternate exterior
B) corresponding
C) alternate interior
D) consecutive interior

39)
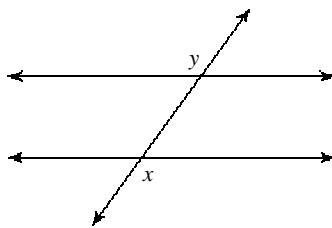
A) alternate interior
B) consecutive interior
C) corresponding
D) alternate exterior

State if the two triangles are congruent. If they are, state how you know.

40)
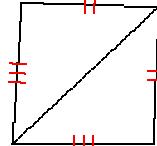
A) Not congruent   B) SSS
C) ASA   D) AAS

41)
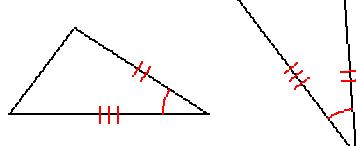
A) Not congruent   B) SAS
C) SSS   D) ASA

Solve each proportion.

42) $\dfrac{x+4}{8} = \dfrac{10}{2}$

A) $\{-9\}$ B) $\{4\}$

C) $\left\{-\dfrac{19}{4}\right\}$ D) $\{36\}$

43) $\dfrac{4}{8} = \dfrac{5}{r-10}$

A) $\{6\}$ B) $\{20\}$

C) $\{1\}$ D) $\left\{5\dfrac{7}{8}\right\}$

Solve for x. The triangles in each pair are similar.

44)
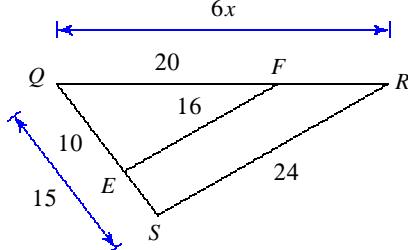
A) 5   B) 8
C) 13   D) 3

45)
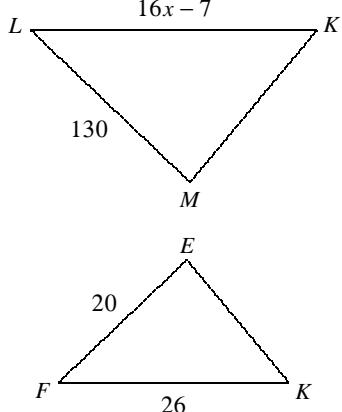
A) 6   B) 4
C) 11   D) 7

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Write each expression in exponential form.

46) $\sqrt[6]{10m}$

   A) $(10m)^{\frac{1}{6}}$ B) $m^{\frac{7}{4}}$

   C) $m^{\frac{5}{3}}$ D) $m^{\frac{5}{2}}$

47) $\left(\sqrt{5r}\right)^5$

   A) $(5r)^{\frac{5}{2}}$ B) $r^{\frac{1}{4}}$

   C) $(6r)^{\frac{1}{3}}$ D) $r^{\frac{1}{2}}$

Write each expression in radical form.

48) $(6x)^{\frac{3}{2}}$

   A) $\left(\sqrt{x}\right)^3$ B) $\left(\sqrt[3]{2x}\right)^4$

   C) $\left(\sqrt{6x}\right)^3$ D) $\left(\sqrt{7x}\right)^5$

49) $n^{\frac{5}{2}}$

   A) $\left(\sqrt{n}\right)^5$ B) $\sqrt[4]{10n}$

   C) $\left(\sqrt[3]{6n}\right)^2$ D) $\left(\sqrt{7n}\right)^3$

Simplify. Your answer should contain only positive exponents with no fractional exponents in the denominator.

50) $p^{\frac{1}{3}} \cdot 2p^2$

   A) $2p^{\frac{7}{3}}$ B) $\dfrac{6p^{\frac{1}{2}}}{p^2}$

   C) $\dfrac{3p^{\frac{5}{6}}}{p^3}$ D) $\dfrac{2p}{p}$

51) $\left(x^0\right)^2$

   A) 1 B) $x^{\frac{3}{2}}$

   C) x^3 D) $x^{\frac{2}{3}}$

52) $2b^{-1} \cdot 2b^{-\frac{3}{2}}$

   A) $\dfrac{6b^{\frac{2}{3}}}{b^2}$ B) $\dfrac{4b^{\frac{1}{2}}}{b^3}$

   C) $6b^3$ D) $\dfrac{2b^{\frac{5}{6}}}{b}$

53) $\dfrac{2v^{\frac{1}{2}}}{v^{\frac{2}{3}}}$

   A) $\dfrac{3v^{\frac{4}{3}}}{2}$ B) $\dfrac{2v^{\frac{5}{6}}}{v}$

   C) $\dfrac{3v^{\frac{1}{2}}}{2v^4}$ D) $\dfrac{v^5}{2}$

54) $\dfrac{n}{3n^{\frac{3}{2}}}$

A) $3n^{\frac{5}{3}}$ B) $\dfrac{n^{\frac{1}{2}}}{3n}$

C) $3n^{\frac{1}{2}}$ D) $3n^{\frac{9}{2}}$

Solve each equation.

55) $3^{-m} = 81$

A) $\{-4\}$ B) $\left\{\dfrac{1}{7}\right\}$

C) $\{-7\}$ D) $\left\{\dfrac{5}{4}\right\}$

56) $\log_8 (9 - n) = \log_8 8$

A) $\left\{\dfrac{13}{14}\right\}$ B) $\left\{\dfrac{11}{8}\right\}$

C) $\{-3\}$ D) $\{1\}$

57) $\log_{11} (3x - 3) = \log_{11} (4x - 6)$

A) $\{-14\}$ B) $\{14\}$
C) $\{-5\}$ D) $\{3\}$

58) $7^{-2a} = 343$

A) $\left\{\dfrac{3}{2}\right\}$ B) $\{6\}$

C) $\{5\}$ D) $\{-8\}$

59) $4^{3k} = \dfrac{1}{64}$

A) $\{-8\}$ B) $\{2\}$
C) $\{-1\}$ D) $\{-4\}$

60) $\left(\dfrac{1}{27}\right)^{-2p+3} = 81$

A) $\{-6\}$ B) $\left\{-\dfrac{4}{3}\right\}$

C) $\left\{\dfrac{13}{6}\right\}$ D) $\{-1\}$

61) $\log_7 (4n - 3) = \log_7 (4 - n)$

A) $\left\{\dfrac{7}{5}\right\}$ B) $\left\{-\dfrac{13}{20}\right\}$

C) $\left\{\dfrac{10}{7}\right\}$ D) $\{7\}$

62) $\log (2x - 4) = \log x$

A) $\{-9\}$ B) $\left\{-\dfrac{5}{4}\right\}$

C) $\{-12\}$ D) $\{4\}$

63) A town with a population of 12000 is declining in population 3 percent per year. Which exponential function represents the population in 12 years? EE means "raised to the power of"

A) P=12000(.03)EE12 B) P=12000(1-.03)EE12
C) P=12000(1+.03)EE12 D) P=12000(.7)EE12

64) An investment of $4000 earns 0.5 percent interest compounded quarterly. Which exponential function represents the value of the investment in 8 years? EE means "raised to the power of"

A) A=4000(1+.05)EE(8)

B) A=4000(1+.005/4)EE(4)

C) A=4000(1+.005/4)EE(8)

D) A=4000(1+.005/4)EE(12)(4)

65) A town with a population of 5000 is declining in population 2.5 percent per year. Which exponential function represents the population in 25 years? EE means "raised to the power of"

A) P=5000(2.5)EE25

B) P=5000(1-2.5)EE25

C) P=5000(1-.025)EE25

D) P=5000(1-.25)EE25

Evaluate each expression.

66) $\log_3 243$

A) -5 B) 5

C) 4 D) 81

67) $\log_3 1$

A) 2 B) -5

C) $\dfrac{1}{3}$ D) 0

Rewrite each equation in exponential form.

68) $\log_5 25 = 2$

A) $5^{25} = 2$ B) $2^{25} = 5$

C) $2^5 = 25$ D) $5^2 = 25$

Simplify. Write "undefined" for expressions that are undefined.

69) $\begin{bmatrix} 0 & 5 & 2 \\ -4 & 5 & -6 \end{bmatrix} + \begin{bmatrix} 5 & 2 & 2 \\ -3 & -2 & 6 \end{bmatrix}$

A) $\begin{bmatrix} 5 & 7 & 4 \\ -7 & 3 & -12 \end{bmatrix}$

B) $\begin{bmatrix} 5 & 7 & 4 \\ -7 & 3 & 0 \end{bmatrix}$

C) $\begin{bmatrix} 5 & 9 & 4 \\ -7 & 3 & 0 \end{bmatrix}$

D) $\begin{bmatrix} 5 & 7 & 4 \\ -7 & -7 & 0 \end{bmatrix}$

70) $\begin{bmatrix} -3 & 5 & -1 \\ -6 & 6 & -3 \end{bmatrix} \cdot \begin{bmatrix} 0 & -3 \\ 6 & 2 \\ -3 & 2 \end{bmatrix}$

A) $\begin{bmatrix} 33 & 17 \\ -27 & -36 \end{bmatrix}$

B) $\begin{bmatrix} 33 & 17 \\ 45 & 24 \end{bmatrix}$

C) $\begin{bmatrix} 33 & -3 \\ -27 & 24 \end{bmatrix}$

D) $\begin{bmatrix} -27 & 17 \\ -27 & 24 \end{bmatrix}$

Evaluate each determinant.

71) $\begin{vmatrix} -1 & 5 \\ 2 & -4 \end{vmatrix}$

A) -6 B) -2
C) 6 D) -7

Write the coordinates of each point.

72)
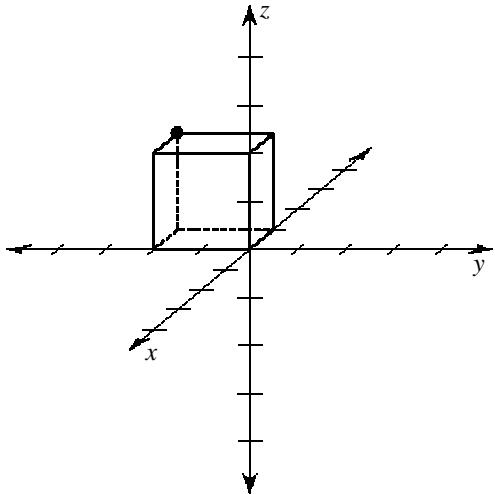
A) $(2, -1, -2)$ B) $(-2, 2, 1)$
C) $(-1, 2, -2)$ D) $(-1, -2, 2)$

73)
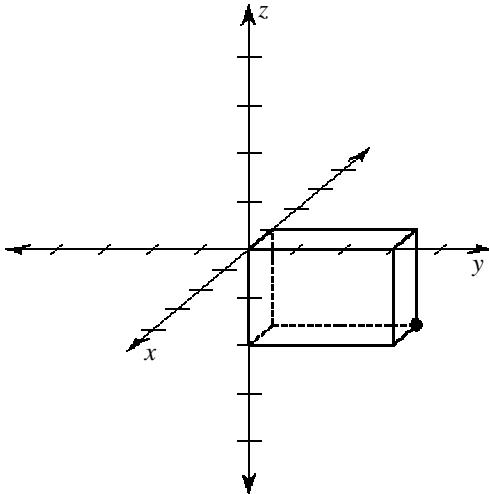
A) $(3, 2, 1)$ B) $(2, 3, 1)$
C) $(-1, 3, -2)$ D) $(-2, 3, -1)$

Find the inverse of each function.

74) $g(x) = \dfrac{-2x + 2}{3}$

A) $g^{-1}(x) = \dfrac{1}{2}x + \dfrac{5}{2}$

B) $g^{-1}(x) = \dfrac{1}{4}x + \dfrac{1}{2}$

C) $g^{-1}(x) = \dfrac{2 - 3x}{2}$

D) $g^{-1}(x) = -5x - 10$

Use the composition of the two given functions to show if they are inverses.

75) $g(x) = -x - 4$
   $f(x) = 4x - 1$

A) Yes   B) No

Answers to Practice for Semester 2 Exam (ID: 10)

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

Answers to Practice for Semester 2 Exam (ID: 10)

46) A   47) A   48) C   49) A
50) A   51) A   52) B   53) B
54) B   55) A   56) D   57) D
58) A   59) C   60) C   61) A
62) D   63) B   64) D   65) C
66) B   67) D   68) D   69) B
70) B   71) A   72) D   73) C
74) C   75) B