

Practice for Semester 2 Exam

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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

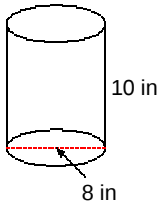
- A) 100π cm² B) 16π cm²
C) 64π cm² D) 49π cm²

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.

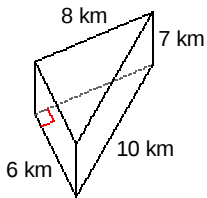
5)



- A) 294 in² B) 251 in²
C) 503 in² D) 298 in²

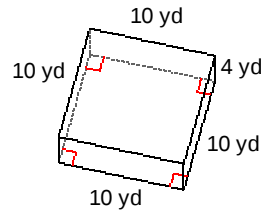
Find the surface area of each figure. Round your answers to the nearest tenth, if necessary.

6)



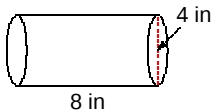
- A) 192 km² B) 315 km²
C) 204 km² D) 216 km²

7)



- A) 360 yd² B) 260 yd²
C) 384 yd² D) 306 yd²

8)



- 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 cm^3
- B) 282.74 cm^3
- C) 329.97 cm^3
- D) 1130.97 cm^3

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

- A) 43 ft^3
- B) 56 ft^3
- C) 59 ft^3
- D) 66 ft^3

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

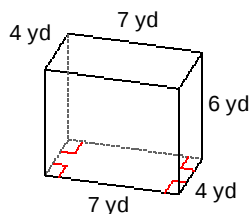
- A) 765 in^3 B) 1033 in^3
C) 1189 in^3 D) 1452 in^3

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

- A) 1785.18 in^3 B) 1980.43 in^3
C) 2035.75 in^3 D) 1340.52 in^3

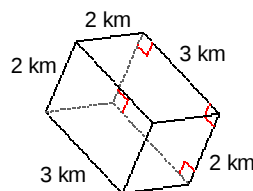
Find the surface area of each figure. Round your answers to the nearest whole, if necessary. Leave your answers in terms of p for answers that contain p .

23)



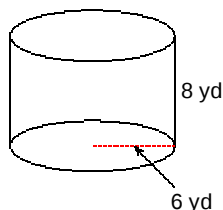
- A) 215 yd^2 B) 121 yd^2
C) 188 yd^2 D) 160 yd^2

24)



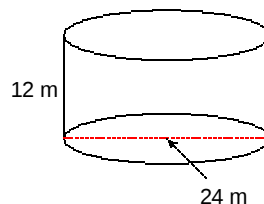
- A) 26 km^2 B) 43 km^2
C) 32 km^2 D) 25 km^2

25)



- A) $207\pi \text{ yd}^2$ B) $137\pi \text{ yd}^2$
C) $154\pi \text{ yd}^2$ D) $168\pi \text{ yd}^2$

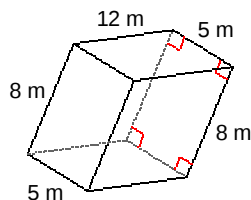
26)



- A) $1728\pi \text{ m}^2$ B) $576\pi \text{ m}^2$
C) $812\pi \text{ m}^2$ D) $408\pi \text{ m}^2$

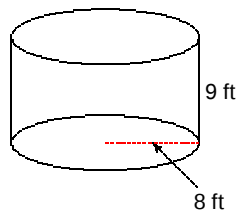
Find the volume of each figure. Round your answers to the nearest whole, if necessary. Leave your answers in terms of p for answers that contain p .

27)



- A) 438 m^3 B) 480 m^3
C) 325 m^3 D) 388 m^3

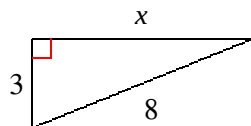
28)



- A) $437\pi \text{ ft}^3$ B) $424\pi \text{ ft}^3$
C) $576\pi \text{ ft}^3$ D) $397\pi \text{ ft}^3$

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

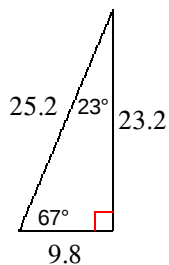
29)



- A) $\sqrt{46}$ B) $\sqrt{55}$
C) $\sqrt{73}$ D) $\sqrt{119}$

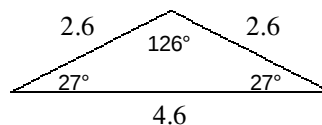
Classify each triangle by its angles and sides.

30)



- A) right isosceles
- B) equilateral
- C) right scalene
- D) obtuse isosceles

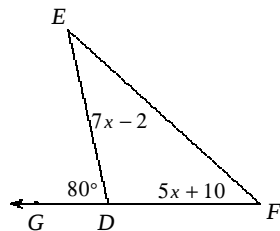
31)



- A) obtuse isosceles
- B) acute isosceles
- C) right isosceles
- D) obtuse scalene

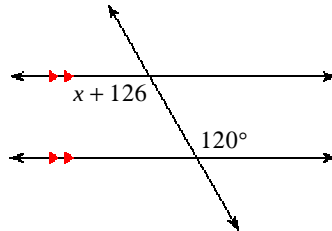
Solve for x .

32)



- A) 6
- B) 10
- C) 15
- D) 13

33)

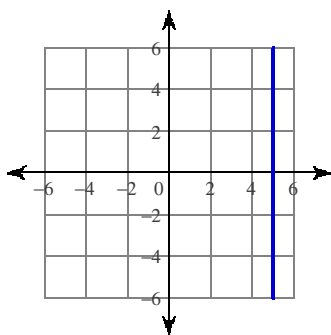


- A) 8
- B) -5
- C) -6
- D) 9

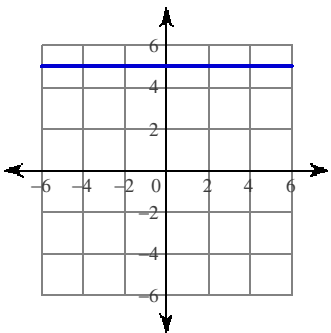
Sketch the graph of each line.

34) $y = 5$

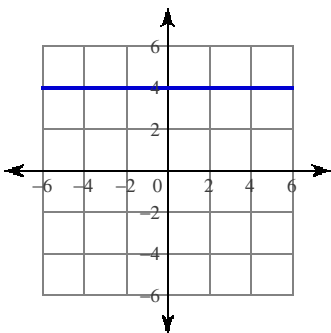
A)



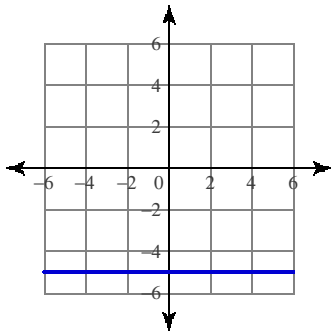
B)



C)

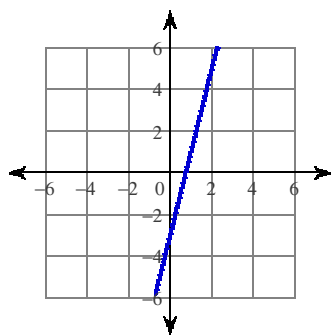


D)

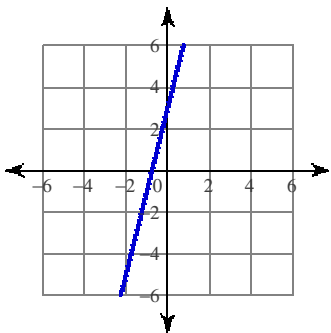


35) $y = 4x + 3$

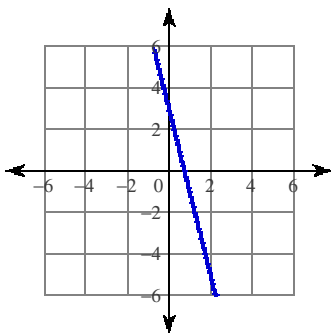
A)



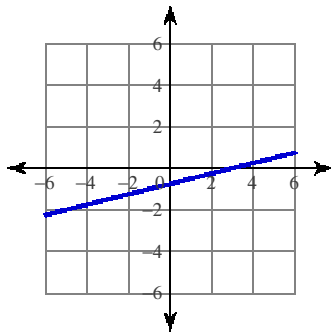
B)



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

A) $\frac{3\sqrt{2}}{2}$

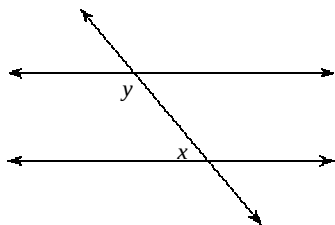
B) $2\frac{1}{2}$

C) $\frac{3\sqrt{5}}{2}$

D) $\frac{\sqrt{14}}{2}$

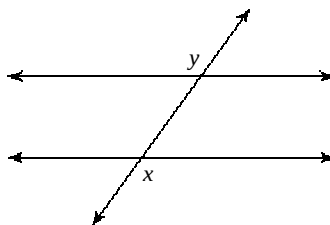
Identify each pair of angles as corresponding, alternate interior, alternate exterior, or consecutive interior.

38)



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

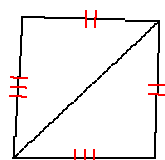
39)



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

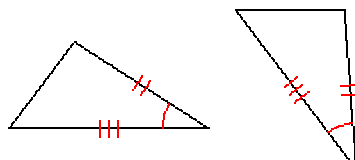
State if the two triangles are congruent. If they are, state how you know.

40)



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

41)



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

Solve each proportion.

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

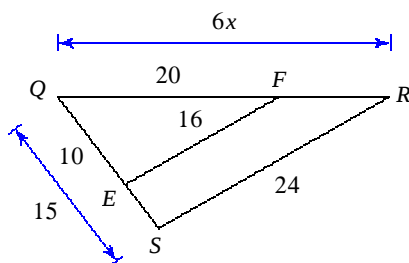
- A) $\{-9\}$
- B) $\{4\}$
- C) $\left\{-\frac{19}{4}\right\}$
- D) $\{36\}$

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

- A) $\{6\}$
- B) $\{20\}$
- C) $\{1\}$
- D) $\left\{5\frac{7}{8}\right\}$

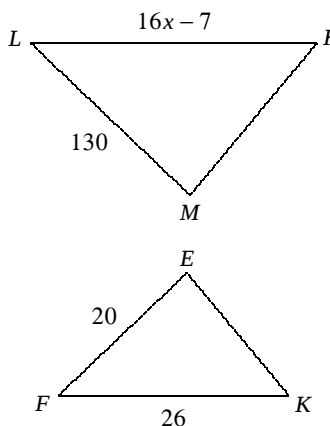
Solve for x. The triangles in each pair are similar.

44)



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

45)



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

Practice for Semester 2 Exam

Date_____ Period_____

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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) $(\sqrt{5r})^5$

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) $(\sqrt{x})^3$

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

C) $(\sqrt{6x})^3$

D) $(\sqrt{7x})^5$

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

A) $(\sqrt{n})^5$

B) $\sqrt[4]{10n}$

C) $(\sqrt[3]{6n})^2$

D) $(\sqrt{7n})^3$

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) $\frac{6p^{\frac{1}{2}}}{p^2}$

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

D) $\frac{2p}{p}$

51) $(x^0)^2$

A) 1

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

C) x^3

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

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

A) $\frac{6b^{\frac{2}{3}}}{b^2}$

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

C) $6b^3$

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

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

A) $\frac{3v^{\frac{4}{3}}}{2}$

B) $\frac{2v^{\frac{5}{6}}}{v}$

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

D) $\frac{v^5}{2}$

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

- A) $3n^{\frac{5}{3}}$ B) $\frac{n^{\frac{1}{2}}}{3n}$
 C) $3n^{\frac{1}{2}}$ D) $3n^{\frac{9}{2}}$

Solve each equation.

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

- A) $\{-4\}$ B) $\left\{\frac{1}{7}\right\}$
 C) $\{-7\}$ D) $\left\{\frac{5}{4}\right\}$

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

- A) $\left\{-\frac{13}{14}\right\}$ B) $\left\{\frac{11}{8}\right\}$
 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) $\left\{-\frac{3}{2}\right\}$ B) $\{6\}$
 C) $\{5\}$ D) $\{-8\}$

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

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

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

- A) $\{-6\}$ B) $\left\{-\frac{4}{3}\right\}$
 C) $\left\{\frac{13}{6}\right\}$ D) $\{-1\}$

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

- A) $\left\{\frac{7}{5}\right\}$ B) $\left\{-\frac{13}{20}\right\}$
 C) $\left\{\frac{10}{7}\right\}$ D) $\{7\}$

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

- A) $\{-9\}$ B) $\left\{-\frac{5}{4}\right\}$
 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) $\frac{1}{3}$ 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) $\begin{bmatrix} -27 & 17 \\ -27 & 24 \end{bmatrix}$

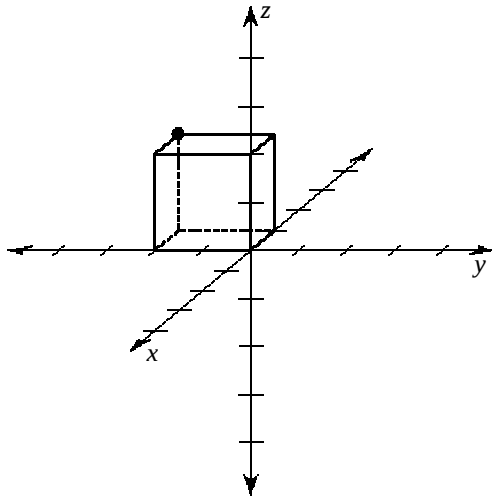
Evaluate each determinant.

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

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

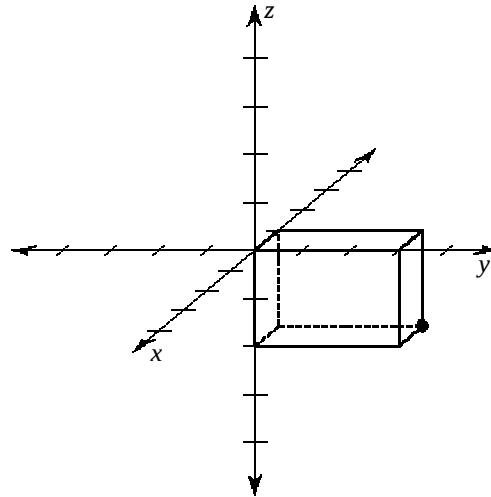
Write the coordinates of each point.

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

- A) $g^{-1}(x) = \frac{1}{2}x + \frac{5}{2}$
B) $g^{-1}(x) = \frac{1}{4}x + \frac{1}{2}$
C) $g^{-1}(x) = \frac{2 - 3x}{2}$
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		