FIRST: ALGEBRA

Choose the correct answer:

(1) If (a+5 , 3) = (8 , b−1) then $\sqrt{a^2+b^2}$ = ...

ⓐ 7 ⓑ 3 ⓒ 9 ⓓ 5

(2) If (X^5 , Y+1) = (32 , $\sqrt[3]{27}$), then X − Y = ...

ⓐ 0 ⓑ 4 ⓒ 2 ⓓ 5

(3) If n(X^2) = 9, then n(X) = ...

ⓐ 3 ⓑ ±3 ⓒ 9 ⓓ ±9

(4) If n(Y) = 3 and n(X×Y) = 12, then n(X^2) = ...

ⓐ 4 ⓑ 16 ⓒ 9 ⓓ 2

(5) If n(X^2) = 9 and n(X×Y) = 6, then n(Y^2) = ...

ⓐ 3 ⓑ 2 ⓒ 4 ⓓ 8

(6) If X = {2} and Y = {3}, then X×Y = ...

ⓐ 6 ⓑ {6} ⓒ (2,3) ⓓ {(2,3)}

(7) If X = {5}, then n(X^2) = ...

ⓐ 1 ⓑ 25 ⓒ 10 ⓓ 5

(8) If X = {1,2} and Y = {3,4}, then (3,4) ∈ ....

ⓐ X×Y ⓑ Y×X ⓒ X^2 ⓓ Y^2

(9) If n(X) = 2 and Y = {1,2}, then n(X×Y) = ...

ⓐ 4 ⓑ 3 ⓒ 5 ⓓ 6

(10) For any two sets A and B, then the set $\{(x,y): x \in A,\ y \in B\}$ refers to ....

a) $n(A\times B)$ b) $A\times B$ c) $n(B\times A)$ d) $B\times A$

(11) If $X = \{3,4\}$, then $n(X\times\varnothing) =$ ....

a) 0 b) 1 c) 2 d) $\varnothing$

(12) If $n(X) = k-2$, $n(Y) = k+2$ and $n(X\times Y) = 5$, then $k =$ ....

a) 3 b) -3 c) ±3 d) 0

(13) If $\{2\} \times \{x,y\} = \{(2,4)\ ,\ (2,3)\}$, then $x-y =$ ....

a) 1 b) -1 c) ±1 d) 0

(14) If the point $(a,5) \in$ Y-axis, then $a =$ ....

a) 0 b) 5 c) -5 d) 25

(15) If the point $(5,b-7) \in$ X-axis, then $b =$ ....

a) 2 b) 5 c) 7 d) 12

(16) If $b < 3$, then the point $(5,b-3)$ lies in the .... quadrant.

a) first b) second c) third d) fourth

(17) If (a,b) lies in the third quadrant, then $a\ b$ .... zero

a) $=$ b) $<$ c) $>$ d) $\leq$

(18) If $(|x|,4) = (3,y^2)$ and (x,y) lies in 2^{nd} quadrant, then $x+y=$......

a) 7 b) 1 c) -1 d) -7

(19) If $(x-2,x-4)$ lies in 4^{th} quadrant, then $x =$ ....

a) 0 b) 2 c) 3 d) 4

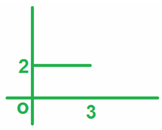
(20) If (k^2-4,k) lies on the negative direction of Y-axis, then $k=$......

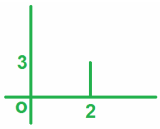
a) 2 b) ±2 c) -2 d) 0

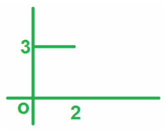
(21) If X×Y = {(1,2) , (1,3) , (1,4)}, then n(X^2) = ………

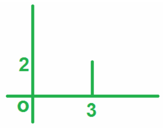
ⓐ 0 ⓑ 1 ⓒ {(1,1)} ⓓ 9

(22) {3} × [0,2] is represented by the figure ………

ⓐ 

ⓑ 

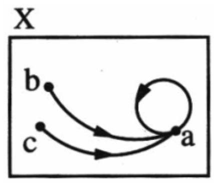
ⓒ 

ⓓ 

(23) If R = {(1,3) , (2,5) , (4,3)} represent a function, then its domain = ………………………

ⓐ {1,2,4} ⓑ {3,5,4} ⓒ Z ⓓ N

(24) The opposite figure represent the arrow diagram of a function on X.
The range = ………………………



ⓐ {a} ⓑ {a,b} ⓒ {a,b,c} ⓓ {b,c}

(25) The set of images of each element of the domain of the function is called the …………………

ⓐ domain ⓑ codomain ⓒ range ⓓ rule

(26) If the function f :X→Y, then the range ⊂ …………

ⓐ X×Y ⓑ X ⓒ Y ⓓ Y×X

(27) The function $f(x) = x^5-3x^4+1$ is of …………… degree.

ⓐ 4th ⓑ 9th ⓒ 5th ⓓ 2nd

(28) The function $f(x) = x(x-x^2)$ is a polynomial of ……… degree.

ⓐ 1st ⓑ 2nd ⓒ 3rd ⓓ 4th

(29) The function $f(x) = x^2-(x^2-3x)$ is a polynomial of ……… degree.

ⓐ 1st ⓑ 2nd ⓒ 3rd ⓓ 4th

(30) If $a = 0$ and $b \neq 0$, then the polynomial $f(x) = ax^2+bx+c$ is of ……… degree.

a 1^{st} b 2^{nd} c 3^{rd} d 4^{th}

(31) If $f(x) = x^2-1$, then $f(1) =$ ………

a 0 b 2 c -2 d 1

(32) If $f(x) = x^2 - \sqrt{2}x$, then $f(\sqrt{2}) =$ ………

a 4 b 2 c 6 d 0

(33) If $f(x) = kx + 8$ and $f(2) = 0$, then $k =$ ………

a 8 b 6 c 4 d -4

(34) If $f(x) = nx^2 + 3x^n - 3$, the set of all possible values of n that makes the function is of 2^{nd} degree is ……………

a {2,3} b {1,-1} c {0,1,2} d {2,1}

(35) If $(a,a) \in f$ where $f(x) = 2x + 3$, then $a =$ ……

a 3 b -3 c 0 d 1

(36) If $X = \{1,2,3\} \rightarrow f(x) = x^2 - 1$, then $f(4) =$ ……

a 15 b 17 c 3 d undefined

(37) If the curve that represents the function $f(x) = x^2 + c$ passes through the point (0,2), then $c =$ ……

a 3 b 2 c -3 d 1

(38) The vertex of the curve that represents the function $f(x) = 2x^2 - 4x + 5$ is ………………

a (1,3) b (3,1) c (-1,3) d (3,-1)

(39) If $f(x) = 5$, then $f(-3) =$ …………

a 5 b -5 c -3 d -15

(40) If $f(x) = 2$, then $f(3) - f(1) =$ ....

ⓐ 0 ⓑ $f(2)$ ⓒ 2 ⓓ 10

(41) If $f(x) = 4$, then $f(4) \div f(10) =$ ....

ⓐ 4 ⓑ $\frac{2}{5}$ ⓒ 1 ⓓ 10

(42) If $f(2x) = 4$, then $f(-x) =$ ....

ⓐ -2 ⓑ -4 ⓒ 4 ⓓ 2

(43) $f(x) = 3x$ is represented by a straight line passes through the point ....

ⓐ (3,3) ⓑ (3,0) ⓒ (0,0) ⓓ (0,3)

(44) If the straight line that represents the function $f(x) = 2x - a$ passes through the origin, then a = ...

ⓐ -3 ⓑ 2 ⓒ 0 ⓓ 3

(45) If $(a,4) \in f$ where $f(x) = 2x + b$, then $6a + 3b =$ ....

ⓐ 12 ⓑ 9 ⓒ 6 ⓓ 3

(46) If $f(x) = x^2$ and $x \in [-2,2]$, then $f(x) \in$ ....

ⓐ [0,4] ⓑ]0,4[ⓒ [0,1] ⓓ [-4,4]

(47) If (x,7) is located on Y-axis, then $5x + 1 =$ ....

ⓐ 0 ⓑ 1 ⓒ 5 ⓓ 6

(48) If (a,3) lies on the straight line that represents $f(x) = 2x - 5$, then a = ...

ⓐ 1 ⓑ 2 ⓒ -2 ⓓ 4

(49) If $f(x) = 3x + b$ and $f(4) = 13$, then b = ...

ⓐ 1 ⓑ 2 ⓒ 0 ⓓ 3

(50) If $f(x) = x - 6$ and $\frac{1}{3} f(a) = -2$, then a = ...

a) 1 b) 0 c) 2 d) 6

(51) The ordered pair (x,y) where $x > 0$ and $y < 0$ is located in the .... quadrant.

a) 1^{st} b) 2^{nd} c) 3^{rd} d) 4^{th}

(52) If 2x = 7y, then $\left(\frac{x}{y}\right)^{-1}$ = ...

a) $\frac{2}{7}$ b) $\frac{7}{2}$ c) $\frac{49}{4}$ d) $\frac{4}{49}$

(53) If a,b,2,3 are proportional, then $\frac{b}{a}$ = ...

a) $\frac{3}{2}$ b) $\frac{2}{3}$ c) 3 d) 2

(54) If a,1,b,2 are proportional, then $\frac{a}{b}$ = ...

a) 3 b) $\frac{1}{2}$ c) $\frac{1}{3}$ d) $\frac{1}{4}$

(55) If $4x^2 = 9y^2$, then $\frac{x}{y}$ = ...

a) $\frac{9}{4}$ b) $\frac{3}{2}$ c) $\pm\frac{2}{3}$ d) $\pm\frac{3}{2}$

(56) If $\frac{a+2b}{a-b} = \frac{2}{3}$, then $\frac{b}{a}$ = ...

a) $\frac{1}{8}$ b) 8 c) $\frac{-1}{8}$ d) -8

(57) If 5a - 4b = 0, then $\frac{a}{b}$ = ...

a) $\frac{4}{5}$ b) $\frac{5}{4}$ c) $\frac{-4}{5}$ d) $\frac{-5}{4}$

(58) If $\frac{5a-7b}{8a+11}=0$, then $\frac{b}{a}$ = ...

a $\frac{5}{7}$ b $\frac{7}{5}$ c $\frac{-8}{7}$ d 0

(59) If $\frac{4}{x}=\frac{7}{y}=\frac{b}{y-x}$, then b = ...

a 3 b -3 c 11 d -11

(60) If $\frac{a}{3}=\frac{b}{8}=\frac{a+\frac{1}{2}b}{x}$, then x = ...

a 7 b 11 c 9 d 5

(61) If $\frac{a}{b}=\frac{c}{d}=m$ where m $\neq$ 0, then $\frac{a\times c}{b\times d}$ = ...

a $2m^2$ b m^2 c m d 2m

(62) If $\frac{a}{5}=\frac{b}{7}$, then 7a – 5b + 3 = ...

a 3 b 7 c 5 d 2

(63) If $\frac{x}{5}=\frac{y}{4}=\frac{x+2y}{k}$, then k = ...

a 9 b 14 c 13 d 8

(64) If $\frac{a}{4}=\frac{b}{5}$ and 2a + 3b = 46, then a = ...

a 2 b 4 c 5 d 8

(65) If $\frac{a}{b}=\frac{2}{3}$ and $\frac{a}{c}=\frac{4}{5}$, then b : c = ...

a 3 : 4 b 5 : 6 c 6 : 5 d 4 : 3

(66) The positive middle proportional between a and b is ....

a $\sqrt{ab}$ b $-\sqrt{ab}$ c $\pm\sqrt{ab}$ d ab

(67) The third proportional of 9 and -12 is ....

a) -16 b) 8 c) 16 d) 108

(68) If 6 is the middle proportional between m and 2, then m = ...

a) 8 b) 12 c) 18 d) 36

(69) If $\frac{a}{b} = \frac{b}{c} = \frac{c}{5} = 2$, then a = ...

a) 5×2^2 b) 40 c) 10 d) 2×5^3

(70) If $\frac{a}{b} = \frac{b}{c} = \frac{c}{d} = 2$, then $\frac{a}{d}$ = ...

a) 2 b) 4 c) 8 d) 16

(71) If a,2,4,b are in a continued proportional, then a + b = ...

a) 8 b) 1 c) 9 d) 7

(72) The middle proportional between (x-2) and (x+2) is ....

a) $\sqrt{x+2}$ b) $\sqrt{x^2-4}$ c) x^2-4 d) $\pm\sqrt{x^2-4}$

(73) The number that must be added to the numbers 1,3,6 to be in a continued proportional is ....

a) 1 b) 2 c) 3 d) 4

(74) If 7,x,$\frac{1}{y}$ are in a continued proportional, then x^2y = ...

a) 7 b) 14 c) 49 d) 1

(75) If y is the middle proportional between x and z, then $\frac{x}{z}$ = ...

a) $\frac{x^2}{y^2}$ b) $\frac{y^2}{z^2}$ c) $\frac{z^2}{y^2}$ d) $\frac{y^2}{x^2}$

(76) If $y = \frac{m}{x^2}$ where m is a constant $\neq 0$, then y α ....

a) x^2 b) x c) $\frac{1}{x}$ d) $\frac{1}{x^2}$

(77) If $x - 2y = 0$, then $x \propto$ ....

a) y b) y^2 c) $\frac{1}{y}$ d) $\frac{1}{y^2}$

(78) The relation that represents a direct variation between x and y is ....

a) $x\,y = 5$ b) $y = x + 2$ c) $\frac{x}{3} = \frac{4}{y}$ d) $\frac{x}{5} = \frac{y}{2}$

(79) If y varies inversely as x and $x = \sqrt{3}$ when $y = \frac{2}{\sqrt{3}}$, then the proportion constant = ...

a) $\frac{3}{2}$ b) $\frac{2}{3}$ c) 2 d) 6

(80) If $x\,y^5$ = constant, then x varies inversely as ....

a) $\frac{1}{5}$ b) y^5 c) y d) y^2

(81) If $y \propto \frac{1}{\sqrt{x}}$, then x varies ....

a) directly as y^2
b) inversely as y^2
c) inversely as $\sqrt{y}$
d) inversely as y

(82) If $y = 3x - 6$, then $y \propto$ ....

a) x b) $\frac{1}{x}$ c) $x-2$ d) $3x-6$

(83) If $\frac{y+3}{y} = \frac{x+2}{x}$, $x \neq 0$, $y \neq 0$, then $y \propto$ ....

a) x b) $\frac{1}{x}$ c) $x+2$ d) $x+5$

(84) If $y - x = \frac{2}{y} - \frac{2}{x}$, $x \neq y$, then ....

a) $y \propto x + 1$ b) $y \propto x$ c) $y \propto \frac{1}{x}$ d) $y \propto \frac{1}{x^2}$

(85) If $9, 2x, \frac{1}{y^2}$ are proportional, then x y = ………

a $\frac{3}{2}$ b $\frac{-3}{2}$ c $\pm\frac{3}{2}$ d $\pm\frac{2}{3}$

(86) If $\frac{a}{b} = \frac{c}{d} = \frac{e}{f} = m$, then $\frac{ace}{bdf}$ = ………

a 3m b m^2 c m^3 d m

(87) If y α x and y = 2 as x = 4, then y = …… x

a 4 b 3 c 2 d $\frac{1}{2}$

(88) The mean of the values 7,3,6,9,5 is ………

a 3 b 6 c 4 d 12

(89) The range of the values 23,22,15,18,17 is ………

a 8 b 18 c 19 d 23

(90) If 67 is the greatest value and the range is 27, then the smallest value is ………

a 67 b 40 c 27 d 94

(91) The most common value of set of individuals is called ………

a median b range c mode d mean

(92) If the mean of the values 3k-3 , 3k-1 , 2k+1 , 2k+3 , 2k+5 is 13, then k = ………

a -5 b 10 c 5 d $\frac{1}{5}$

(93) If the range of values 2,7,a,6 is 8 where a > 0, then a = ……

a 4 b 9 c -1 d 10

(94) If $\left(x - \overline{x}\right)^2 = 28$ for the set 7 values, then σ = ……………

a 28 b 7 c 4 d 2

(95) If the function $f(x) = (k-3)x^3 + 2x^m + 1$ is of 2^{nd} degree, then k+m= ....

ⓐ 5 ⓑ 3 ⓒ 2 ⓓ -5

(96) The difference between the greatest value and the smallest value is called ....

ⓐ median ⓑ mean ⓒ range ⓓ mode

(97) If the standard deviation for the values 5 , x+2 and 2y+1 is zero, then x + y = ...

ⓐ 10 ⓑ 5 ⓒ 15 ⓓ 0

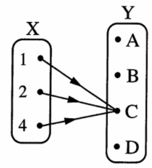
(98) The standard deviation for the values 7, 7, 7 is ....

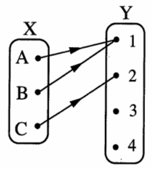
ⓐ 49 ⓑ 7 ⓒ 3 ⓓ 0

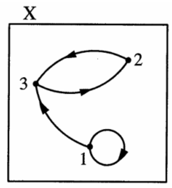
(99) If all individuals are equal, then ....

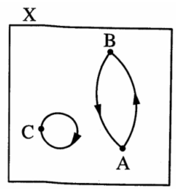
ⓐ X=0 ⓑ $\overline{X} = 0$ ⓒ $\sigma=0$ ⓓ mode=0

(100) Which of the following arrow diagrams does not represent a function

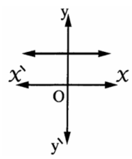
ⓐ 

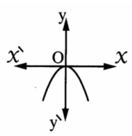
ⓑ 

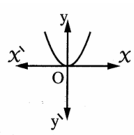
ⓒ 

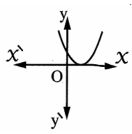
ⓓ 

(101) The graph of the function f where $f(x) = x^2-2x+1$ is the graph number ....

ⓐ 

ⓑ 

ⓒ 

ⓓ 

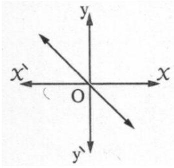
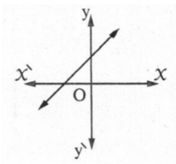
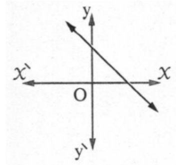
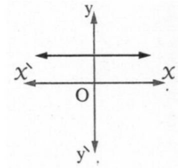
(102) If the curve of the function f where $f(x) = x^2-a$ passes through the point (1,0), then a = ...

ⓐ ±1 ⓑ -1 ⓒ 1 ⓓ zero

(103) If $f(x) = x^{k+3} + 2k$ is a quadratic function, then $f(2) =$ ....

ⓐ 1 ⓑ -1 ⓒ 2 ⓓ -2

(104) The graph which represents the direct variation is number ......

ⓐ  ⓑ  ⓒ  ⓓ 

Essay problems:

(1) If X = {1,5,6} and Y = {5} and Z = {2,3}, Find:
(a) n(X × Z).
(b) (Y ∩ X) × (X - Y).

(2) If X × Y = {(2,3) , (2,6) , (2,7)}, Find:
(a) X and Y.
(b) Y^2.
(c) $n(X^2)$.

(3) If X = {2,3}, Y = {3,4} and Z = {4,5}, Find:
(a) Z × (X ∩ Y)
(b) (Z – Y) × X

(4) If $(x+3 , 8) = (5 , 2^y)$, then find the value of x and y.

(5) If (x-2 , 9) = (5 , x+y), find the value of $\sqrt{3x+2y}$.

(6) If $(x^2, |x|) = (4,3)$ and (x,y) located in the 3rd quadrant, then find x+y.

(7) If X={1,3,5} and Y={1,2,4,5,6} and R is a relation from X to Y where aRb means a+b=7 for a∈X and b∈Y. Write R, represent it by the arrow diagram, show that R is a function and write its range.

(8) If X={1,3,5} and R is a function on X where R={(a,3), (b,1), (1,5)}. Find the value of a+b.

(9) If $f(x)=2x^2-5x+2$, prove that $f(2)=f(\frac{1}{2})$

(10) If f is a function on X where X={3,4,5,6} and $f(3)=3$, $f(4)=5$, $f(5)=5$, $f(6)=5$. represent f by an arrow diagram, write f and find its range.

(11) If the straight line which represents the function $f(x)=ax+b$ intersects X-axis at (3,0) and Y-axis at (0,-3), find the value of a and b.

(12) If $(2a,5a) \in f$ where $f(x)=2x+5$, find the value of a and identify the intersection points of the straight line with the coordinates axes.

(13) If $f(x)=(3-a)x^2+(b+5)x+4$ is a constant function. Find the value of a+b.

(14) If the vertex of the curve of the function $f(x)=x^2-ax+3$ is (2,k). Find the value of a and k.

(15) Represent graphically the function $f(x)=4-x^2$, where $x\in[-3,3]$ and from the graph identify:
(a) The vertex.
(b) The equation of the axis of symmetry.
(c) The maximum or minimum value.

(16) Represent graphically the function $f(x)=x^2+2x+1$, where $x\in[-4,2]$ and from the graph identify:
(a) The vertex.
(b) The equation of the axis of symmetry.
(c) The maximum or minimum value.

(17) If $\frac{x-2y}{x+3y}=\frac{1}{3}$, find the value $\frac{y}{x}$.

(18) If $\frac{x}{y} = \frac{2}{3}$, find the value of $\frac{3x + 2y}{6y - x}$.

(19) Find the number that if added to the two terms of the ratio 7:11 it becomes 2:3

(20) Find the number must be added to each of the numbers 3,5,8 and 12 to be proportional.

(21) Find the number if subtract its triple from the two terms of the ratio 49:69 it becomes 2:3.

(22) Find the number if we added its square to the two terms of the ratio 7:11 it becomes 4:5

(23) If $\frac{a + b}{b} = \frac{c + d}{d}$, prove that a, b, c and d are proportional.

(24) If $\frac{a}{b - a} = \frac{c}{d - c}$, prove that a, b, c and d are proportional.

(25) If a, b, c and d are proportional, prove that:

(a) $\frac{3a + c}{5a - 2c} = \frac{3b + d}{5b - 2d}$

(b) $\frac{a^2 + b^2}{ab + cd} = \frac{a}{b}$

(c) $\frac{ac}{bd} = \left(\frac{a - c}{b - d}\right)^2$.

(26) If $\frac{x}{3} = \frac{y}{4} = \frac{z}{5}$, prove that $\frac{2y - z}{3x - 2y + z} = \frac{1}{2}$.

(27) If $\frac{a}{2} = \frac{b}{3} = \frac{c}{4} = \frac{2a - b + 5c}{3x}$, find the value of x.

(28) If $\frac{x}{a - b + c} = \frac{y}{b - c + a} = \frac{z}{c - a + b}$, prove that $\frac{x + y}{a} = \frac{y + z}{b}$.

(29) If $\frac{x}{2a+b} = \frac{y}{2b-c} = \frac{z}{2c-a}$, prove that

$$\frac{2x+y}{4a+4b-c} = \frac{2x+2y+z}{3a+6b}.$$

(30) If $\frac{a+b}{4} = \frac{b+c}{5} = \frac{c+a}{7}$, prove that $\frac{a+b+c}{8} = \frac{a}{3}$.

(31) If a, 3, 9, b are in a continued proportion, find the value of a and b.

(32) If $\frac{a^2+b^2}{b^2} = \frac{b^2+c^2}{c^2}$, prove that b is a middle proportion between a and c where ac is a positive quantity.

(33) If b is a middle proportion between a and c, prove that:

(a) $\frac{a}{c} = \frac{b^2}{c^2}$.

(b) $\frac{a^2+b^2}{b^2+c^2} = \frac{a}{c}$.

(34) If Y varies directly as X and Y=20 as X=7, Find the relation between X and Y, then find the value of X as Y=4.

(35) If Y α X and Y=14 as X=42, Find:
(a) The relation between Y and X.
(b) The value of Y as X=60.

(36) If $y \,\alpha\, \frac{1}{x}$ and Y=3 as X=2, Find:
(a) The relation between Y and X.
(b) The value of Y as X=1.5

(37) If $\frac{a+2b}{6} = \frac{b+3c}{3}$, prove that a α b.

(38) If $x^2y^2 - 6xy + 9 = 0$, prove that $y \,\alpha\, \frac{1}{x}$.

(39) If $4x^2 + 9y^2 = 12xy$, prove that $y \propto x$.

(40) From the opposite table:

X	2	4	6
y	6	3	2

(a) Determine the type of variation.
(b) Find the constant of variation.
(c) Find the value of y as x=3

(41) If y=z+5, $z \propto \frac{1}{x}$ and y=6 as x=2. Find the relation between x and y, then find the value of y as x=1

(42) Calculate the mean and the standard deviation of the following values:

(a) 15, 6, 8, 12, 4.

(b) 5, 6, 7, 8, 9.

(43) Calculate the standard deviation of the following frequency distributions:

(a)

Values	0	1	2	3	4	5
Frequency	9	15	17	25	20	14

(b)

Sets	0-	2-	4-	6-	8-
Frequency	1	5	9	3	2

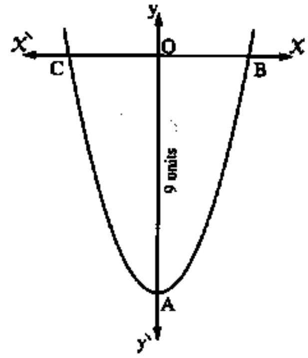
Drawn problems:

(1) The opposite figure represents the curve of the function f where $f(x) = x^2+k$. Find:

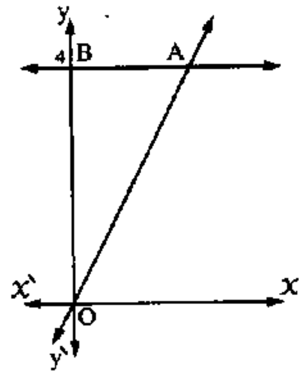
(a) The value of k.

(b) The coordinates of B and C.

(c) the area of triangle with vertices A,B,C

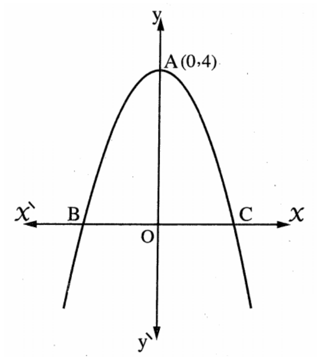


(2) The $\overleftrightarrow{AO}$ represents a linear function f where $f(x) = nx+k$ and the area of the Δ ABO is 4 square units. Find the value of n and k.

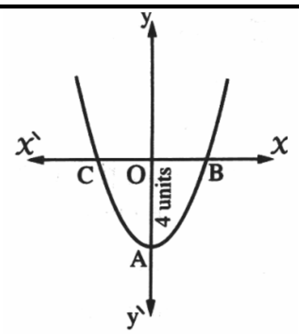


(3) The opposite figure represents the curve of the quadratic function f where $f(x) = 4-kx^2$, if the area of Δ ABC is 8 square units, Find:

(a) The value of k.
(b) The coordinates of B.
(c) The maximum or minimum value.
(d) The equation of the axis of symmetry.



(4) The opposite figure represents the curve of the function f where $f(x) = x^2-m$, Find:
(a) The value of m.
(b) The area of Δ ABC.



SECOND: GEOMETRY

Choose the correct answer:

(1) The straight line whose slope $m_1=2$ intersects a straight line in one point, then the slope $m_2 \neq$ ……….

ⓐ 2 ⓑ -2 ⓒ $\frac{1}{2}$ ⓓ $\frac{-1}{2}$

(2) The are of triangle that bounded by the straight lines: $x = 0$, $y = 0$ and $3x-4y=12$ is ……… square unit

ⓐ 4 ⓑ 6 ⓒ 12 ⓓ 10

(3) ABCD is a square in which A(1,0) and B(5,-3), then the perimeter of the square is ……… length unit

ⓐ 5 ⓑ 10 ⓒ 20 ⓓ 15

(4) If C(2,-1) is the midpoint of $\overline{AB}$, A(2,3), then the coordinates of B is ………

ⓐ (1,2) ⓑ (2,1) ⓒ (2,-5) ⓓ (-5,2)

(5) The distance between (0,0) and (3,-4) is ……… length unit.

ⓐ 1 ⓑ 5 ⓒ -1 ⓓ 7

(6) The equation of the straight line passes through (3,5) and parallel to X-axis is ………………………

ⓐ Y=3 ⓑ X=3 ⓒ Y=5 ⓓ X=5

(7) $\overline{AB}$ is a diameter in the circle M, A(-2,3) and B(6,-5), then the coordinates of M is …………

ⓐ (4,4) ⓑ (-2,1) ⓒ (2,-1) ⓓ (-1,2)

(8) The straight line whose equation: $3x+4y-9=0$ is perpendicular to the straight line whose slope …………

a) $\frac{3}{4}$ b) $\frac{4}{3}$ c) $\frac{-4}{3}$ d) $\frac{-3}{4}$

(9) The distance between the point (3,-4) and the X-axis equals ………… length unit.

a) -3   b) 4   c) -4   d) 3

(10) The straight line whose slope equals to the additive identity is parallel to the straight line whose equation is …………………

a) Y=X   b) Y=1   c) X=1   d) Y=-X

(11) If the X-axis bisect $\overline{AB}$ where A(4,2) and B(-2,y), then y=……

a) 3   b) 2   c) -2   d) 4

(12) Two perpendicular straight lines, the slope of the first is $\frac{-1}{4}$ and the slope of the second is 4k, then k = ………

a) 4   b) 1   c) -4   d) $\frac{1}{4}$

(13) If the two straight lines: $x+y=5$ and $kx+2y=0$ are parallel, then k = ………

a) -2   b) -1   c) 1   d) 2

(14) If the straight line whose equation $bx+a=cy$ and passing through the origin, then …… = 0

a) b×c   b) c   c) b   d) a

(15) The straight line whose equation y=x passing through ……

a) (-1,0)   b) (0,0)   c) (1,0)   d) (0,-1)

(16) The slope of the straight line whose equation $cx+ay=b$ is ……

a) $\frac{-a}{b}$ b) $\frac{-a}{c}$ c) $\frac{-b}{c}$ d) $\frac{-c}{a}$

(17) If $\frac{5}{4}$ and $\frac{k}{2}$ are two slopes of two perpendicular straight lines, then k = ………

ⓐ $\frac{-5}{8}$ ⓑ $\frac{5}{8}$ ⓒ $\frac{8}{5}$ ⓓ $\frac{-8}{5}$

(18) A circle, its center is the origin point, and its radius length is 3 length units, then the point ………… belongs to the circle.

ⓐ (1,3) ⓑ $(-2, \sqrt{5})$ ⓒ (3,1) ⓓ (2,1)

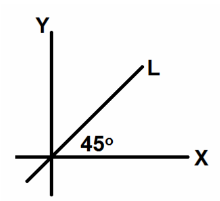
(19) The perpendicular distance between y=3 and y=-2 is …………

ⓐ 1 ⓑ 2 ⓒ 3 ⓓ 5

(20) If $\overleftrightarrow{AB}$ // $\overleftrightarrow{CD}$ and the slope of $\overleftrightarrow{AB}$ =-2, then the slope of $\overleftrightarrow{CD}$ is ……

ⓐ -2 ⓑ $\frac{-1}{2}$ ⓒ $\frac{1}{2}$ ⓓ undefined

(21) The equation of the straight line L is ……



ⓐ X=1 ⓑ Y=1 ⓒ Y=X ⓓ Y=-X

(22) ABCD is a parallelogram, then slope of $\overleftrightarrow{AB}$ = the slope of ……

ⓐ $\overleftrightarrow{AD}$ ⓑ $\overleftrightarrow{AC}$ ⓒ $\overleftrightarrow{BC}$ ⓓ $\overleftrightarrow{CD}$

(23) The length of the intercepted part of Y-axis by the straight line 3y=4x-12 equals …………… length unit.

ⓐ 3 ⓑ -4 ⓒ 4 ⓓ 12

(24) The circumference of a circle whose center (0,0) and passing through the point (3,4) is …………… length unit.

ⓐ 5π ⓑ 10π ⓒ 4π ⓓ 6π

(25) The slope of the straight line which makes an angle of measure θ with the positive direction of X-axis is ....

a) $\sin\theta$ b) $\cos\theta$ c) $\tan\theta$ d) $\sin\theta + \theta$

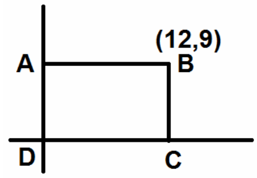
(26) $\overline{AB}$ is a diameter in a circle where A(-1,5) and B(3,1), then the coordinates of the center is ....

a) (2,6)   b) (1,3)   c) (4,-4)   d) (-4,4)

(27) The slope of the straight line that parallel to the Y-axis (perpendicular to X-axis) is ....

a) 0   b) 1   c) -1   d) undefined

(28) In the opposite figure: ABCD is a rectangle. AD = ... length unit.



a) 9   b) 12   c) 13   d) 0

(29) If (0,a) belongs to the straight line $3x-4y+12=0$, then a = ...

a) -3   b) 4   c) 3   d) -4

(30) The equation of the straight whose slope is 1 and passing through the origin is ....

a) X=1   b) Y=1   c) Y=X   d) Y=-X

(31) The slope of the straight line which makes an angle of measure 45° with the positive direction of X-axis is ....

a) 1   b) -1   c) 0   d) 2

(32) If $\overleftrightarrow{AB}$ is parallel to x-axis where A(8,3) and B(2,k), then k=...

a) 8   b) 0   c) 3   d) 2

(33) If $\overleftrightarrow{AB} \perp \overleftrightarrow{CD}$, A(-1,2) and B(0,0), then the slope of $\overleftrightarrow{CD}$ is ......

a) -2   b) $\frac{1}{2}$ c) $\frac{-1}{2}$ d) 2

(34) If the distance between (a,0) and (0,1) is 1 length unit, then a = ………

a) -1 b) 0 c) 1 d) ±1

(35) If the slope of the straight line ax-y+5=0 is 3, then a = ……

a) 5 b) -5 c) 1 d) 3

(36) The straight line passing through (-1,-1) and (4,4) makes an angle with positive direction of X-axis of measure ………..°

a) 30 b) 45 c) 60 d) 135

(37) The slope of the straight line $2y = \frac{1}{2}(3 - 5x)$ is ………..

a) $\frac{-5}{2}$ b) $\frac{-5}{4}$ c) $\frac{3}{4}$ d) $\frac{3}{2}$

(38) The straight line 3x+4y=9 is perpendicular to the straight line whose slope is ……………

a) $\frac{4}{3}$ b) $\frac{3}{4}$ c) $\frac{-4}{3}$ d) $\frac{-3}{4}$

(39) ABCD is a square and A(2,-5) , B(-1,-1), then its perimeter is …………… length unit.

a) 5 b) 20 c) 7 d) 28

(40) If the slopes of two straight lines are equal, then the two straight lines are ……………

a) perpendicular b) parallel

c) intersecting d) skew

(41) The length of the Y intercept by the straight line 2x-3y=6 equals …………… length unit.

a) -6 b) -2 c) 6 d) 2

(42) The equation of Y-axis is ………………

a) X=0   b) Y=0   c) Y=X   d) XY=1

(43) The points (-3,0) , (0,3) and (3,0) are vertices of triangle whose type ………….

a) scalene
b) isosceles
c) obtuse-angled
d) isosceles and right-angled

(44) If the slope of a straight line is greater than 0, then the angle with the positive direction of X-axis is …………

a) obtuse   b) acute   c) right   d) straight

(45) If the slope of the straight line y+ax+b=0 is -3 and passing through (1,4), then a+b=…………

a) 4   b) 7   c) -4   d) -7

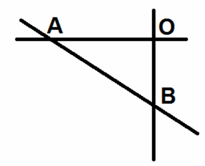
(46) If the slope of the straight line passing through the two points (k,2k+1) and (k-2,4k-1) is 3, then k = …………

a) 2   b) -2   c) 3   d) -3

(47) If the straight line y=(a-1)x +5 is parallel to the straight line that passing the two points (1,2) and (3,8), then a = …………

a) 3   b) 4   c) -4   d) 7

(48) In the opposite figure: 3 OA = 4 OB, then the equation of $\overleftrightarrow{AB}$ is …………………



a) $y = \frac{-3}{4}x + 3$
b) $y = \frac{-3}{4}x - 3$
c) $y = \frac{-4}{3}x + 3$
d) $y = \frac{-4}{3}x - 3$

(49) If the straight line $x-\sqrt{3}y=2$ makes an angle with the positive direction of x-axis of measure $(2k+20)^\circ$, then k = ...

ⓐ 30 ⓑ 20 ⓒ 10 ⓓ 5

(50) If $\sin\theta = \cos 2\theta$ where θ is an acute angle, then θ = ...°

ⓐ 45 ⓑ 30 ⓒ 60 ⓓ 15

(51) $\frac{\sin\theta}{cox\theta}$ = ...

ⓐ 1 ⓑ $\tan\theta$ ⓒ $\sin\theta$ ⓓ $\cos\theta$

(52) ABC is an isosceles triangle and $\tan\left(\frac{A}{2}\right) = 1$, then tan B = ...

ⓐ 1 ⓑ $\frac{1}{2}$ ⓒ 2 ⓓ 45°

(53) $\tan\theta \times \cos\theta$ = ...

ⓐ $\cos\theta$ ⓑ $\sin\theta$ ⓒ 1 ⓓ 0

(54) ABC is a right-angled triangle at B and $AB = \frac{1}{2}AC$,

then cos A = ...

ⓐ $\frac{1}{2}$ ⓑ $\frac{\sqrt{3}}{2}$ ⓒ $\frac{1}{\sqrt{2}}$ ⓓ $\frac{1}{\sqrt{3}}$

(55) ABC is a triangle where $m(\angle B) = m(\angle A) + m(\angle C)$, then $\tan\frac{B}{2}$ =......

ⓐ 45 ⓑ 1 ⓒ $\frac{1}{2}$ ⓓ $\frac{\sqrt{3}}{2}$

(56) 4 cos 30 tan 60 = ...

ⓐ 3 ⓑ $2\sqrt{3}$ ⓒ 6 ⓓ 12

(57) If $\cos 2\theta = \frac{1}{2}$ where θ is an acute angle, then θ = ...°

ⓐ 15 ⓑ 30 ⓒ 45 ⓓ 60

(58) If $\tan \frac{3x}{2} = 1$ where x is an acute angle, then $m(\angle x) = ...^\circ$

a) 10 b) 30 c) 45 d) 60

(59) If $\cos \frac{x}{2} = \frac{\sqrt{3}}{2}$ where x is an acute angle, then sin x =......

a) $\frac{1}{2}$ b) $\frac{\sqrt{3}}{2}$ c) $\frac{2}{\sqrt{3}}$ d) $\frac{1}{\sqrt{3}}$

Essay problems:

(1) If 2 sin x = sin 30° cos 60° + cos 30° sin 60°, find the value of x.

(2) ABC is a right angled triangle at B and 2AB= $\sqrt{3}$ AC, find the trigonometrical ratios of (∠B).

(3) If the ratio between two supplementary angles is 3:5, find the measure of each of them.

(4) If sin (2x+20) = cos (x+50), find the value of x.

(5) ABC is a right-angled triangle at C, AB=13 cm, BC=12cm. Prove that: sin A cos B + cos A sin B = 1

(6) Find the equation of a straight line whose slope is 2 and intercepts the positive direction of Y-axis a part of length 7 units.

(7) Find the equation of a straight line whose slope $\frac{-1}{2}$ and passing through the point (3,5).

(8) Find the equation of a straight line which passes through the points (2,3) and (-3,2).

(9) Find the equation of a straight line which passes through the point (3,-5) and parallel to the straight line $x+2y-7=0$

(10) Find the equation of a straight line which passes through the point (1,2) and perpendicular to the straight line which passes through the points (3,2) and (5,-4).

(11) Find the equation of a straight line whose slope equals the slope of the straight line $\frac{y-1}{x} = \frac{1}{3}$ and intercepts the negative direction of Y-axis a part of length 3 units.

(12) Find the equation of a straight line which intercepts the two axes two positive parts of length 4 and 9 respectively.

(13) ABCD is a square in which A(5,4) and C(-1,6). Find the equation of $\overleftrightarrow{BD}$.

(14) ABCD is a rhombus in which A(1,3) and C(6,0). Find the equation of $\overleftrightarrow{BD}$.

(15) Find the equation of the straight line which passes through A(2,3) and B(-1,3) then prove that $C \in \overleftrightarrow{AB}$ where C(2k+1,4k+1).

(16) ABC is a triangle where A(1,3) , B(5,-2), C(3,4), D is the midpoint of $\overline{AB}$, $\overrightarrow{DE} \mathbin{//} \overleftrightarrow{BC}$ intersects $\overline{AD}$ in E. Find:
(a) the length of $\overline{DE}$.   (b) the equation of $\overleftrightarrow{DE}$

(17) The opposite table represents a linear relation:

x	1	2	3
$f(x)$	1	3	a

(a) Find the equation of the straight line.
(b) Find the length of y intercept.
(c) Find the value of a.

(18) If A(-3,4) , B(5,-1) and C(3,5). Find the equation of the straight line which passes through A and the mid point of $\overline{BC}$.

(19) Find the equation of the straight line which passes through the point (3,5) and intercepts a part of the positive direction of X-axis of length 4 units.

(20) Find the equation of line of symmetry of $\overline{XY}$ where X(3,-2) and Y(-5,6).

(21) If the distance between (a,5) and (6,1) is $2\sqrt{5}$, find the value of a.

(22) If A(x,3), B(3,2), C(5,1) and AB=BC, find the value of x.

(23) If C(x,-3) is the midpoint of AB where A(-3,y) and B(9,-7), find the value of x and y.

(24) Prove that A(4,3), B(1,1) and C(-5,-3) are collinear.

(25) If (1,1), (3,5) and (5,a) are collinear, find the value of a.

(26) Prove that the triangle whose vertices are A(5,-5), B(-1,7) and C(15,15) is right-angled at B, then find its area.

(27) Determine the type of Δ ABC according to the length of its sides where A(-2,4), B(3,1) and C(4,5).

(28) If A(5,3), B(6,-2), C(1,-1) and D(0,4). Prove that ABCD is a rhombus and find its area.

(29) ABCD is a parallelogram in which A(3,4), B(2,-1), C(-4,-3). Find the coordinates of D.

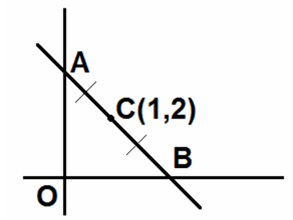
(30) If A(3,-2), B(-5,0), C(8,-9) and D(0,7) prove that ABDC is a parallelogram.

Drawn Problems:

(1) From the opposite figure, Find:

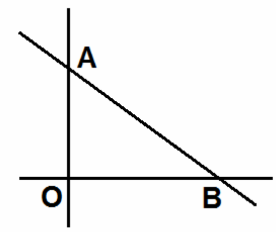
(a) the coordinates of A and B

(b) The area of Δ AOB.

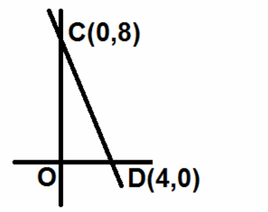


(2) In the opposite figure, if $\overleftrightarrow{AB}$ intercepts Y-axis in the positive direction a part of 3 units and AB = 5 units.

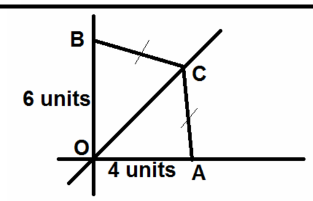
Find: the equation of $\overleftrightarrow{AB}$



(3) The equation of $\overleftrightarrow{AB}$ is CX+Y+D=0, find the value of C and D.



(4) The equation of $\overleftrightarrow{OC}$ is Y=X, find the coordinates of C.



(5) In the opposite figure, if $\tan(\angle ABO) = \frac{4}{3}$,

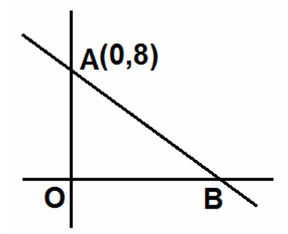
Find:

(a) $m(\angle BAO)$

(b) the coordinates of B

(c) The slope of $\overleftrightarrow{AB}$.

(d) The equation passes through O and perpendicular to $\overleftrightarrow{AB}$

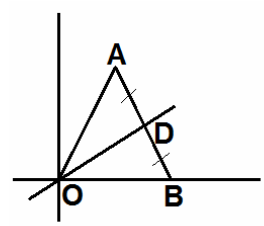


(6) In the opposite figure, ABO is an equilateral triangle, D is the midpoint of AB, Find:

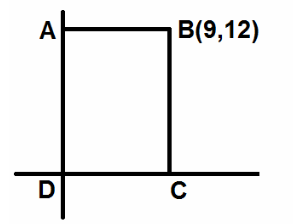
(a) The slope of $\overleftrightarrow{AB}$.

(b) The equation of $\overleftrightarrow{OD}$.

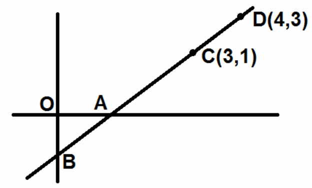
(c) If $(5\sqrt{3}, k) \in \overleftrightarrow{OD}$, find the value of k.



(7) ABCD is a rectangle, find length of $\overline{AD}$.



(8) Find the length of each $\overline{AD}$ and $\overline{OB}$

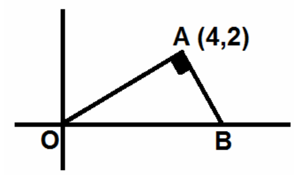


(9) Find:

(a) The coordinates of B.

(b) The equation of $\overleftrightarrow{AB}$.

(c) tan ($\angle ABO$)



(10) From the opposite figure, Find:

(a) The length of $\overline{AB}$.

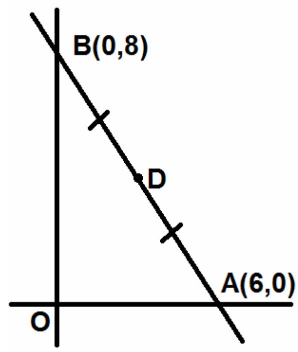
(b) The coordinates of D.

(c) $m(\angle ABO)$.

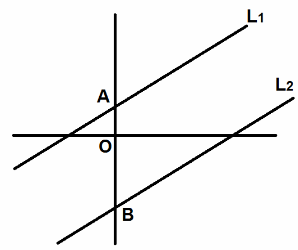
(d) The slope of the perpendicular to $\overleftrightarrow{AB}$.

(e) The equation of the straight which parallel to $\overleftrightarrow{AB}$ and passes through the origin.

(f) sin A cos B + cos A sin B



(11) If $L_1 // L_2$, the equation of L_1 is $y=\frac{2}{3}x+2$ and AB=5 units. Find the equation of L_2.



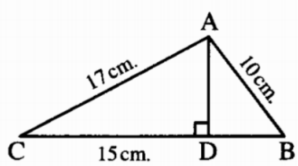
(12) **In the opposite figure :**

$\overline{AD} \perp \overline{BC}$, AC = 17 cm. ,

DC = 15 cm. , AB = 10 cm.

Find the value of :

3 tan ($\angle$ C) + sin ($\angle$ B)

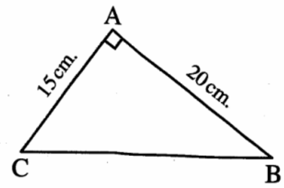


(13) **In the opposite figure :**

ABC is a triangle in which : m (∠ A) = 90°

, AC = 15 cm. and AB = 20 cm.

Prove that : cos C cos B – sin C sin B = zero

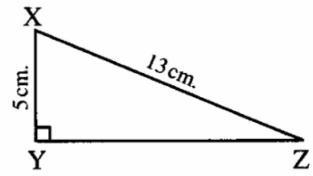


(14) **In the opposite figure :**

XYZ is a triangle , m (∠ Y) = 90°

XY = 5 cm. , XZ = 13 cm.

Find: sin X cos Z + cos X sin Z



THIRD: ACCUMULATIVE SKILLS

(1) The sum of measure of accumulative angles at point = ……°

a 90 b 180 c 270 d 360

(2) The sum of measures of interior angles of the pentagon = ……°

a 180 b 360 c 540 d 720

(3) The number of diagonals of the hexagon = …………

a 6 b 3 c 12 d 9

(4) ABC is a triangle in which $m(\angle B) = 3m(\angle A) = 90^\circ$, then $m(\angle C)$=…°

a 30 b 45 c 60 d 90

(5) ABCD is a parallelogram $m(\angle A) : m(\angle B)$= 1 : 3, then $m(\angle B)$=…°

a 45 b 135 c 120 d 115

(6) If 3,7,L are lengths of sides of triangle, then L may = ……

a 3 b 4 c 7 d 10

(7) ABC is an isosceles triangle, the lengths of two sides 3cm and 7cm, then the third side may = ……… cm

a 3 b 7 c 4 d 10

(8) ABC is a triangle in which AB=AC and $m(\angle A)$= 60°, then the number of axes of symmetry of this triangle = ………

a 1 b 3 c 0 d 2

(9) The number of axes of symmetry of a circle is ………

a 0 b 1 c 4 d infinite

(10) ABC is a triangle in which $m(\angle B) > m(\angle C)$, then ……………

ⓐ AC−AC<0 ⓑ AC−AB≤0 ⓒ BC≤AB ⓓ AC>AB

(11) The base angles of the isosceles triangle are …………

ⓐ congruent ⓑ supplementary
ⓒ equal ⓓ complementary

(12) The angle of measure ……… supplements an angle of measure 120°.

ⓐ 120 ⓑ 240 ⓒ 60 ⓓ 30

(13) The quadrilateral whose diagonals perpendicular and equal en length is called ………………

ⓐ square ⓑ rhombus ⓒ circle ⓓ rectangle

(14) The volume of a cuboid whose dimensions $\sqrt{2}$, $\sqrt{3}$, $\sqrt{6}$ is …… cm^3

ⓐ $2\sqrt{6}$ ⓑ $3\sqrt{6}$ ⓒ $2\sqrt{3}$ ⓓ 6

(15) The measure of exterior angle of an equilateral triangle is …°

ⓐ 60 ⓑ 80 ⓒ 100 ⓓ 120

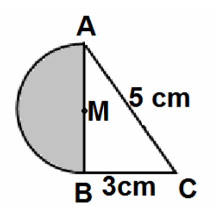
(16) IF $\overline{AB} \equiv \overline{CD}$, then AB − CD = …………

ⓐ 0 ⓑ 1 ⓒ -1 ⓓ 2

(17) The image of the point (-3,7) by reflection in Y-axis is ……

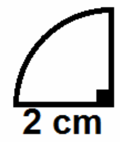
ⓐ (3,7) ⓑ (-3,-7) ⓒ (3,-7) ⓓ (-3,7)

(18) From the opposite figure, the area of the shaded part is ………… cm^2



ⓐ 4π ⓑ 16π ⓒ 2π ⓓ 9π

(19) The opposite figure represents a quarter of a circle of radius length 2cm, then the perimeter of the figure is ………… cm



a 2π b 5π c $\pi+4$ d $4\pi+4$

(20) In Δ ABC, if $m(\angle C) = m(\angle A) + m(\angle B)$, then ABC is …………

a acute-angled triangle
b isosceles triangle
c right-angled triangle
d obtuse-angled triangle

(21) In any triangle ABC, AB + BC – AC > …………

a 0 b 1 c AC d otherwise

(22) The sum of lengths of any two sides in a triangle is …… the length of the third side.

a more than b less than c equal to d twice

(23) The type of the angle of measure 108° is ……………

a right b obtuse c acute d reflex

(24) If ABCD is a parallelogram, then AB + CD = …………

a 2AC b 2BC c 2BD d 2CD

(25) If ABCD is a parallelogram and $m(\angle A) + m(\angle C) = 150^\circ$, then $m(\angle B) =$ ………°

a 75 b 30 c 105 d 100

(26) Two equal complementary angles, the measure of each of them is …………°

a 50 b 60 c 45 d 30

(27) The length of side opposite to the angle of measure 30° in the right angled triangle equals …… the length of the hypotenuse.

a 2 b $\frac{1}{2}$ c $\frac{1}{3}$ d $\frac{2}{3}$

(28) In the Δ ABC, if AB > AC, then $m(\angle B)$.........$m(\angle C)$.

a > b < c = d ≡

(29) The concurrence point of medians of triangle divides each median in the ratio ...... : ...... from the vertex.

a 1:1 b 2:3 c 1:2 d 2:1

(30) The circumference of a circle whose its diameter length 14 cm is .... cm

a 7 b 22 c 44 d 14

(31) The image of (-4,5) by a translation (2,-3) is ....

a (-2,-2) b (2,-2) c (2,2) d (-2,2)

(32) ABC is a right-angled triangle at B, AB = 3cm, BC = 4cm, then the area of triangle = ... cm^2

a 9 b 6 c 12 d 7

(33) If the perimeter of a square is 16 cm, then its area =...... cm^2

a 64 b 16 c 8 d 4

(34) The sum of measure of two supplementary angles = ...°

a 360 b 270 c 180 d 90

(35) Which of the following are sides of a right-angled triangle?

a 3,4,6 b 5,12,13 c 6,8,9 d 9,5,14

(36) The isosceles trapezium has .... axes of symmetry

a 1 b 2 c 0 d 3

(37) The rhombus (rectangle) has .... axes of symmetry

a 0 b 1 c 2 d 3

(38) The square has .... axes of symmetry

a 1 b 2 c 3 d 4

FIRST: ALGEBRA

Choose the correct answer:

1.	D	2.	A	3.	A	4.	B
5.	C	6.	D	7.	A	8.	D
9.	A	10.	B	11.	A	12.	A
13.	C	14.	A	15.	C	16.	D
17.	C	18.	C	19.	C	20.	C
21.	B	22.	D	23.	A	24.	A
25.	C	26.	C	27.	C	28.	C
29.	A	30.	A	31.	A	32.	D
33.	D	34.	D	35.	B	36.	D
37.	B	38.	A	39.	A	40.	A
41.	C	42.	C	43.	C	44.	C
45.	A	46.	A	47.	B	48.	D
49.	A	50.	B	51.	D	52.	A
53.	A	54.	A	55.	D	56.	C
57.	A	58.	A	59.	A	60.	A
61.	B	62.	A	63.	C	64.	D
65.	C	66.	C	67.	C	68.	C
69.	B	70.	C	71.	C	72.	D
73.	C	74.	A	75.	B	76.	D
77.	A	78.	D	79.	C	80.	B
81.	B	82.	C	83.	A	84.	C
85.	C	86.	C	87.	D	88.	B
89.	A	90.	B	91.	C	92.	C
93.	D	94.	D	95.	C	96.	C
97.	B	98.	D	99.	C	100.	C
101.	D	102.	C	103.	C	104.	A

SECOND: GEOMETRY

Choose the correct answer:

1.	A	2.	B	3.	C	4.	C
5.	B	6.	C	7.	C	8.	B
9.	B	10.	B	11.	C	12.	B
13.	D	14.	D	15.	B	16.	D
17.	D	18.	B	19.	D	20.	A
21.	C	22.	D	23.	C	24.	B
25.	C	26.	B	27.	D	28.	A
29.	C	30.	C	31.	A	32.	C
33.	B	34.	B	35.	D	36.	B
37.	B	38.	A	39.	B	40.	B
41.	D	42.	A	43.	D	44.	B
45.	C	46.	B	47.	B	48.	B
49.	D	50.	B	51.	B	52.	A
53.	B	54.	A	55.	B	56.	C
57.	B	58.	B	59.	B		

THIRD: ACCUMULATIVE SKILLS

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