Models of tests from the school book

Model 1

Answer the following questions :

1 Complete each of the following :

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

(2) The equation of the straight line which is parallel to X-axis and passes through the point (– 2 , 3) is .....

(3) If X , y are the measures of two complementary angles , where $X : y = 1 : 2$, then $\sin X + \cos y =$ .....

(4) The distance between the points (6 , 0) , (– 4 , 0) equals .....

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

(6) If : $\overleftrightarrow{AB} \parallel \overleftrightarrow{CD}$ and the slope of $\overleftrightarrow{AB} = \frac{2}{3}$, then the slope of $\overleftrightarrow{CD}$ = ...

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2 Choose the correct answer from those given :

(1) If : $\cos 2X = \frac{1}{2}$, X is the measure of an acute angle , then m ($\angle X$) = ... °

(a) 15 (b) 30 (c) 45 (d) 60

(2) The slope of the straight line whose equation : $2X - 3y + 5 = 0$ equals .....

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

(3) The length of the line segment which is drown between the two points (0 , 0) , (5 , 12) equals .....

(a) 5 (b) 7 (c) 12 (d) 13

(4) $\tan 45° =$ .....

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

(5) In ΔABC , if m ($\angle B$) = 90° , then $\sin A + \cos C =$ .....

(a) 2 sin A (b) 2 sin C (c) 2 sin B (d) 2 cos A

(6) $\tan 45° \sin 30° =$ .....

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

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3 [a] ABC is a right-angled triangle at B , $2AB = \sqrt{3}\,AC$, find the trigonometrical ratios of $\angle C$

[b] Find the equation of the straight line passes through the point (2 , – 1) and parallel to the straight line : $2X - y + 5 = 0$

4 **[a] Prove that :** $\cos 60° = \cos^2 30° - \sin^2 30°$

[b] ABCD is a parallelogram , its diagonals intersect at E , if A (3 , – 1) , B (6 , 2) , C (1 , 6) , then find :

First : the coordinates of E , D **Second :** the length of $\overline{DE}$

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5 **[a] Prove that :** $\tan 60° = 2 \tan 30° \div (1 - \tan^2 30°)$

[b] Find the slope and intercepted part of y-axis of the straight line whose equation : $\frac{x}{2} + \frac{y}{3} = 1$

Answer the following questions :

1 **Complete each of the following :**

(1) If the two straight lines : $2x + by + 3 = 0$, $3x - y + 2 = 0$ are perpendicular , then b = ...

(2) If $\sin x = 0.5$, x is an acute angle , then m ($\angle x$) = ... °

(3) The distance between the two points (5 , 0) , (0 , –12) equals .....

(4) $\sin 60° + \cos 30° - \tan 60°$ = ...

(5) If the two straight lines : $kx - 2y + 3 = 0$, $6x + 3y - 5 = 0$ are parallel , then k = ...

(6) The slope of the perpendicular straight line to the line which passes through the two points (2 , 6) , (– 4 , 1) equals .....

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2 **Choose the correct answer from those given :**

(1) $2 \sin 30° \cos 30°$ = ...

(a) $\sin 60°$ (b) $\cos 60°$ (c) $\tan 60°$ (d) $2 \sin 60°$

(2) The points (– 3 , 0) , (0 , 3) , (3 , 0) are the vertices of .....

(a) a scalene triangle. (b) an equilateral triangle.

(c) an obtuse-angled triangle. (d) a right-angled triangle and isosceles.

(3) The equation of the straight line which passes through the point (2 , – 3) , parallel to x-axis is .....

(a) $x = -2$ (b) $y = -3$ (c) $x = 2$ (d) $y = 3$

(4) If the straight line whose equation : $x + 3y - 6 = 0$ is perpendicular to the straight line whose equation : $ax - 3y + 7 = 0$, then a = ...

(a) 2 (b) 9 (c) – 9 (d) – 2

(5) If the point (0 , 4) is the midpoint of the distance between the two points (– 1 , – 1) , ($\mathcal{X}$, y) , then the point ($\mathcal{X}$, y) is .....

(a) (1 , 9) (b) (– 1 , 9) (c) $\left(-\frac{1}{2} , \frac{3}{2}\right)$ (d) (– 1 , 3)

(6) In Δ ABC , if m (∠ B) = 90° , AB = 3 cm. , BC = 4 cm. , then sin A cos C = ...

(a) 1 (b) $\frac{9}{25}$ (c) $\frac{12}{25}$ (d) $\frac{16}{25}$

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3 **[a]** Find the equation of the straight line which passes through the point (1 , 6) and the midpoint of $\overline{AB}$, where A (1 , – 2) , B (3 , – 4)

[b] Prove that : $\sin^3 30° = 9 \cos^3 60° - \tan^2 45°$

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4 **[a]** Prove that the triangle whose vertices A (1 , 4) , B (– 1 , – 2) , C (2 , – 3) right-angled at B , then find its area.

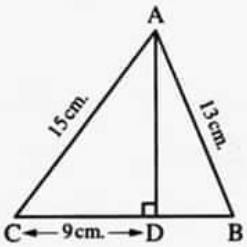
[b] In the opposite figure :

$\overline{AD} \perp \overline{BC}$

, AB = 13 cm.

, AC = 15 cm. ,

find in the simplest form the value of : $\frac{\tan (\angle CAD) + \tan (\angle BAD)}{\tan (\angle CAD) - \tan (\angle BAD)}$



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5 **[a]** Find the equation of the straight line which passes through the point (3 , 4) and perpendicular to the straight line : $5\mathcal{X} - 2y + 7 = 0$

[b] ABCD is a trapezium in which $\overline{AD} // \overline{BC}$, m (∠ B) = 90° , if AB = 3 cm. , AD = 6 cm. , BC = 10 cm. , **prove that :** $\cos (\angle DCB) - \tan (\angle ACB) = \frac{1}{2}$

Answer the following questions :

1 **Complete each of the following :**

(1) $\cos^2 45° + \tan^2 60° - \sin 30°$ = ...

(2) If : A (2 , – 1) , B (5 , 3) , then AB = ...

(3) If $L_1 : k\mathcal{X} - 2y + 4 = 0$, $L_2 : \mathcal{X} + 3y - 7 = 0$ and $L_1 \perp L_2$, then k = ...

(4) $\sin 30° \cos 60° + \cos 30° \sin 60°$ = ...

(5) The equation of the straight line which passes through the point (– 2 , 7) , parallel to y-axis is .....

(6) Δ ABC right-angled at A , if tan B = 1 , then tan C sin C cos C = ...

2 **Choose the correct answer from those given :**

(1) The equation of the straight line whose slope is 1 , passes through the origin point is .....

(a) $x = 1$ (b) $y = 1$ (c) $y = x$ (d) $y = -x$

(2) If : $\overleftrightarrow{LM} \perp \overleftrightarrow{EO}$, E (– 1 , 2) , O (0 , 0) , then the slope of $\overleftrightarrow{LM}$ equals .....

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

(3) If : $\tan 3x = \sqrt{3}$, where ($3x$) is the measure of an acute angle , then

$m(\angle x)$ = ...°

(a) 10 (b) 20 (c) 30 (d) 60

(4) If the origin point is a centre of a circle of diameter length 6 length unit , then the point which belongs to the circle is .....

(a) (6 , 0) (b) (0 , – 6) (c) $\left(\sqrt{8}\ ,\ 1\right)$ (d) $\left(1\ ,\ \sqrt{5}\right)$

(5) In ΔABC , if $\angle C$ is right , then $\sin B + \cos B$ 1

(a) = (b) > (c) < (d) ≤

(6) If : $\sin x = \frac{1}{2}$, x is an acute angle , then $\sin 2x$ = ...

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

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3 **[a] Prove that :** the triangle whose vertices are the points Y (2 , 4) , X (0 , 6.8) , Z (– 5 , – 1) is right-angled triangle at Y

[b] ABC is a triangle in which : AB = AC = 10 cm. , BC = 12 cm. , $\overline{AD}$ is a perpendicular to $\overline{BC}$ intersects it at D , **prove that :**

(1) $\sin B + \cos C = 1.4$ (2) $\sin^2 C + \cos^2 C = 1$

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4 **[a] Without using calculator , find the value of :** $\frac{\cos^2 60° + \cos^2 30° + \tan^2 45°}{\sin 60° \tan 60° - \sin 30°}$

[b] Represent graphically the points : A (2 , 3) , B (– 1 , – 1) , C (3 , – 4) , D (6 , 0) , in the coordinates plane , then prove that they are vertices of a square , then find its area.

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5 **[a]** Find the value of x , where $0° < x < 90°$

if $\sin x \sin 45° \cos 45° \tan 60° = \tan^2 45° - \cos^2 60°$

[b] A straight line , its slope is $\frac{1}{2}$, intercepts from the positive part of y-axis a part of length two units , find :

(1) The equation of this straight line.

(2) Its intersection point with the y-axis.

Answer the following questions :

1 Complete each of the following :

(1) The slope of the straight line which is parallel to the straight line which passes through the two points $(3 , 1) , (5 , -1)$ equals .....

(2) The equation of the straight line which passes through the origin point and perpendicular to the straight line $y = 2x$ is .....

(3) The value of the expression : $\sin 60° \cos 30° - \cos 60° \sin 30°$ = ...

(4) If : $\tan 3x = 1$, where $3x$ is an acute angle , then x = ...°

(5) The slope of the perpendicular straight line to straight line $3x + 4y - 9 = 0$ is .....

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

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2 Choose the correct answer from those given :

(1) $\sin^2 60° - \cos^2 60°$ = ...

(a) 0 (b) $\frac{1}{4}$ (c) $\frac{1}{2}$ (d) 1

(2) If the origin point is a centre of a circle of radius 3 unit length , then the point ..... belongs to it.

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

(3) The slope of the straight line which is parallel to the x–axis is .....

(a) – 1 (b) 0 (c) 1 (d) undefined

(4) If the slope of straight line : $a x - y + 3 = 0$ equals 1 , then a = ...

(a) $-\frac{1}{3}$ (b) – 1 (c) $\frac{1}{3}$ (d) 1

(5) The perpendicular distance between the two straight lines : $y - 3 = 0 , y + 2 = 0$ equals .....

(a) 1 (b) 2 (c) 3 (d) 5

(6) If : $\sin 30° = \cos \theta$, where θ is an acute angle , then m $(\angle \theta)$ = ... °

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

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3 [a] $\overline{AB}$ is a diameter of circle M if B (8 , 11) , M (5 , 7) , then find :

(1) The coordinates of A

(2) The length of the radius of the circle.

(3) The equation of the perpendicular straight line to $\overline{AB}$ from the point B

[b] Find the value of $\mathcal{X}$, if $\sin \mathcal{X} = \sin 60° \cos 30° - \cos 60° \sin 30°$,
where $0° < \mathcal{X} < 90°$

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4 **[a]** Δ ABC is right-angled at C in which : AB = 10 cm. , BC = 8 cm.
Find the value of : $\sin A \cos B + \cos A \sin B$

[b] Find the equation of the straight line which passes through the two points (2 , 3) , (– 3 , 2)

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5 **[a] Without using calculator , find the numerical value of the expression :**
$\cos 60° \sin 30° - \sin 60° \cos 30°$

[b] If the points A (1 , 0) , B (–1 , 4) , C (7 , 8) , D (9 , 4) , in the coordinates plane ,
prove that : ABCD is a rectangle , find the length of its diagonal.

Answer the following questions :

1 **Complete each of the following :**

(1) If : $\sin (y + 7) = 0.5$, $(y + 7)$ is an acute angle , then y = ...

(2) The equation of the straight line which passes through the point (3 , – 2) and parallel to $\mathcal{X}$-axis is .....

(3) The distance between the point (4 , 3) , the origin point in the coordinates plane equals .....

(4) If m_1 , m_2 are the slopes of two perpendicular straight lines , then $m_1 \times m_2$ = ...

(5) $2 \sin 30° \cos 30° = \sin$ .....°

(6) If the straight line $y = \mathcal{X} \sin 30° + c$ passes through the point (4 , 6) , then c = ...

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2 **Choose the correct answer from those given :**

(1) If : $\frac{-2}{3}$, $\frac{k}{2}$ are the solpes of two parallel straight lines , then k = ...

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

(2) If $\overline{AB}$ is a diameter of a circle , where A (3 , –5) , B (5 , 1) , then the centre of the circle is .....

(a) (4 , –2) (b) (4 , 2) (c) (2 , 2) (d) (8 , –2)

(3) $\sin 60° + \cos 30° + \tan 60° =$ .....

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

(4) If the distance between the two points (a , 0) , (0 , 1) is 1 length unit , then a = ...

(a) -1 (b) 0 (c) 1 (d) ± 1

(5) The straight line which passes through the two points (1 , y) , (3 , 4) , its slope is $\tan 45°$, then y = ...

(a) 1 (b) -1 (c) 2 (d) 4

(6) If : ΔXYZ is right-angled at Z , XY = 25 cm. , YZ = 7 cm. , XZ = 24 cm. , then : $\sin X + \sin Y =$ .....

(a) $\frac{31}{25}$ (b) $\frac{17}{25}$ (c) 2 (d) 1

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3 **[a]** If the two equations of two straight lines L_1 and L_2 respectively are :

$2x - 3y + a = 0$, $3x + by - 6 = 0$

(1) Find the value of b which makes $L_1 // L_2$

(2) Find the value of b which makes $L_1 \perp L_2$

(3) If the point (1 , 3) lies on L_1 , then find the value of a

[b] Because of wind , the upper part of a tree was broken made an angle of measure 60° with the grourd. If the point of contact of the top of the tree with the ground was at distance 4 m from its bottom , find the length of the tree to the nearest metre.

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4 **[a] prove that :** $\sin 60° = 2 \sin 30° \cos 30°$

[b] ABCD is a parallelogram , A (x , 2) , B (3 , 8) , C (9 , 10) D (7 , 4) , find x

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5 **[a] prove that :** the triangle whose vertices A (1 , – 2) , B (– 4 , 2) and C (1 , 6) is an isosceles triangle.

[b] In the opposite figure :

m ($\angle$ C) = 40°

AC = 12 cm. ,

find to the nearest one decimal place the length of :

$\overline{AB}$ and the length of $\overline{BC}$ to the nearest cm.