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## MATHS

# NCERT - NCERT MATHEMATICS(TELUGU) 

## STRAIGHT LINES

Examples

1. Find the slope of the lines:

Passing through the points $(3,-2)$ and $(-1,4)$

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2. Find the slope of the lines:

Passing through the points $(3,-2)$ and $(7,-2)$

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3. Find the slope of the lines:

Passing through the points $(3,-2)$ and $(3,4)$

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4. Find the slope of the lines:

Making inclination of $60^{\circ}$ with the positive direction of $x$ - axis.

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5. If the angle between two lines is $\frac{\pi}{4}$ and slope of one the lines is $\frac{1}{2}$, find the slope of the other line.

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6. Line through the points $(-2,6)$ and $(4,8)$ is perpendicular to the line through the points $(8,12)$ and $(x, 24)$.

Find the value of $x$.

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7. Three points $P(h, k), Q\left(x_{1}, y_{1}\right)$ and $R\left(x_{2}, Y_{2}\right)$ lie on a line. Show that $\left(h-x_{1}\right)\left(y_{2}-y_{1}\right)=\left(k-y_{1}\right)\left(x_{2}-x_{1}\right)$.
8. In fig 10.9 , time and distance graph of a linear motion is given.

Two positions of time and distance are recorder as, when $T=0, D=2$ and when $T=3, D=8$. Using the concept of slope, find law of motion, i.e., how distance depends upon time.

9. Find the equations of the lines parallel to axes and passing through $(-2,3)$.

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10. Find the equation of the line through $(-2,3)$ with slope
$-4$.

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11. Write the equation of the line through the points
$(1,-1)$ and $(3,5)$.

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12. Find the product of the following pairs?
$7 x^{2} y^{3}, 11 x^{3}$

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13. Find the product of the following pairs?
$7 a^{4} b c^{2}, 2 a^{3} b^{3}$

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14. Find the equation of the line whose perpendicular distance from the origin is 4 units and the angle which the normal makes with positive direction of x - axis is $15^{\circ}$.
15. The Fahrenheit remperature $F$ and absolute temperature $K$ satisfy a linear equation. Given that $K=273$ when $F=32$ and that $\mathrm{K}=373$ when $\mathrm{F}=212$.

Express $K$ in terms of $F$ and find the value of $F$, when $K=0$.

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16. Equation of a line is $3 x-4 y+10=0$. Find its (i) slope ,
(ii) x - and y - intercepts.

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17. Reduce the equation $\sqrt{3} x+y-8=0$ into normal form.

Find the values of $p$ and $\omega$.
18. Find angle between the lines
$y-\sqrt{3} x-50$ and $\sqrt{3} y-x+6=0$.

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19. 

Show
that
two
lines
$a_{1} x+b_{1} y+c_{1}=0$ and $a_{2} x+b_{2} y+c_{2}=0$ where $b_{1}, b_{2} \neq 0$
are :
(i) Parallel if $\frac{a_{1}}{b_{1}}=\frac{a_{2}}{b_{2}}$, and (ii) Perpendicular if $a_{1} a_{2}+b_{1} b_{2}=0$.
20. Find the equation of a line perpendicular to the line $x-2 y+3=0$ and passing through the point $(1,-2)$.

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21. Find the distance of the point $(3,-5)$ from the line $3 x-4 y-26=0$.

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22. Find the distance between the parallel lines
$3 x-4 y+7=0$ and $3 x-4 y+5=0$

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23. 

$2 x+y-3=0,5 x+k y-3=0$ and $3 x-y-2=0$ are
concurrent, find the value of $k$.

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24. Find the product of the following pairs?
$12 x^{5} y, 21 x^{2} y^{2}$

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25. Find the product of the following pairs?
$7 x^{2} y^{3}, 5 x^{3} y z$
26. Find the product of the following pairs?
$8 a^{2} b c^{2}, 10 a b^{3} c$

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27. Find the product of the following pairs?
$11 a^{2} b, 3 a^{3} b^{2}$

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28. Find the product of the following pairs?
$4 a^{2} b c^{3}, 10 a^{4} b$

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1. Find the product of the following pairs?
$10 p^{2} q, 11 p q^{2}$

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2. Find the product of the following pairs?
$9 a^{2} b, 2 a^{3} b^{3}$

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3. Find the distance between $P\left(x_{1}, y_{1}\right)$ and $Q\left(x_{2}, y_{2}\right)$ when
: (i) $P Q$ is parallel to the $y$-axis, (ii) $P Q$ is parallel to the $x$-axis.
4. Find a point on the $x$-axis, which is equidistant from the points $(7,6)$ and $(3,4)$.

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5. Find the slope of a line, which passes through the origin, and the mid-point of the line segment joining the points $P(0,-4)$ and $B(8,0)$.

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6. Without using the Pythagoras theorem, show that the points $(4,4),(3,5)$ and $(-1,-1)$ are the vertices of a right angled triangle.
7. Find the product of the following pairs?
$7 x^{3} y^{2}, 9 x^{4} y^{2}$

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8. Find the value of x for which the points $(x,-1)(2,1)$ and (4,
5) are collinear.

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9. Without using distance formula, show that points $(-2,-1),(4,0),(3,3)$ and $(-3,2)$ are the vertices of a parallelogram.

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10. . Find the angle between the $x$-axis and the line joining the points $(3,-1)$ and $(4,-2)$.

## (D) Watch Video Solution

11. Find the product of the following pairs?
$9 p^{3} q r^{2}, 3 p q^{4}$

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12. A line passes through $\left(x_{1}, y_{1}\right)$ and $(h, k)$. If slope of the line is $m$, show that $k-y_{1}=m\left(h-x_{1}\right)$.
13. If three points $(h, 0),(a, b)$ and $(0, k)$ lie on a line, show that $\frac{a}{h}+\frac{b}{k}=1$.

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14. Consider the following population and year graph (Fig 10.10), find the slope of the line $A B$ and using it, find what will be the population in the year 2010?

15. Write the equations for the $x$-and $y$-axes.

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2. Passing through the point $(-4,3)$ with slope $\frac{1}{2}$.

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3. Passing through $(0,0)$ with slope $m$.
4. Find the product of the following pairs?
$6 x^{2}, 5 y^{2}$

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5. Intersecting the $x$-axis at a distance of 3 units to the left of origin with slope -2 .

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6. Find the product of the following pairs?
$11 x^{3} y, 11 y^{2} z$

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7. Passing through the points $(-1,1)$ and $(2,-4)$.

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8. Perpendicular distance from the origin is 5 units and the angle made by the perpendicular with the positive $x$-axis is $30^{\circ}$

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9. Write the following in the standard notation $100 \times 2+10 \times 9+1$

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10. Find the equation of the line passing through $(-3,5)$ and perpendicular to the line through the points $(2,5)$ and $(-3,6)$.

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11. Write the following in the standard notation
$100 \times 1+10 \times 2+3$
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12. Find the equation of a line that cuts off equal intercepts on the coordinate axes and passes through the point $(2,3)$.
13. Write the following in the standard notation
$100 \times 2+10 \times 3+4$

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14. Write the following in the standard notation
$100 \times 2+10 \times 5+6$

## - Watch Video Solution

15. The perpendicular from the origin to a line meets it at the point $(-2,9)$ find the equation of the line.
16. Write the following in the standard notation
$1000 \times 2+100 \times 3+10 \times 1+2$

## - Watch Video Solution

17. Write the following in the standard notation
$100 \times 6+10 \times 4+2$

## - Watch Video Solution

18. Write the following in the standard notation
$100 \times 4+10 \times 2+8$

- Watch Video Solution

19. Write the following in the standard notation
$100 \times 9+10 \times 7+3$

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20. By using the concept of equation of a line, prove that the three points $(3,0),(-2,-2)$ and $(8,2)$ are collinear.

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Exercise 103

1. Write the following in the standard notation
$100 \times 6+10 \times 5+3$
2. Write the following in the standard notation $100 \times 5+10 \times 4+2$

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3. Write the following in the standard notation $100 \times 9+10 \times 2+7$

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4. Find the distance of the point $(-1,1)$ from the line $12(x+6)=5(y-2)$.
5. Find the points on the $x$-axis, whose distances from the line $\frac{x}{3}+\frac{y}{4}=1$ are 4 units.

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6. Write the following in the standard notation
$100 \times 6+10 \times 2+9$

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7. Find equation of the line parallel to the line $3 x-4 y+2=0$ and passing through the point $(-2,3)$.
8. Find equation of the line perpendicular to the line $x-7 y+5=0$ and having x intercept 3.

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> 9. Find angles between the lines
> $\sqrt{3} x+y=1$ and $x+\sqrt{3} y=1$

## D Watch Video Solution

10. Write the following in the standard notation
$100 \times 6+10 \times 5+1$

- Watch Video Solution

11. Write the following in the standard notation
$1000 \times 1+100 \times 2+10 \times 3+4$

## - Watch Video Solution

12. Write the following in the standard notation
$100 \times 9+10 \times 8+7$

## - Watch Video Solution

13. Write the following in the standard notation
$100 \times 4+10 \times 2+1$

- Watch Video Solution

14. Write the following in the standard notation
$100 \times 3+10 \times 4+6$

## D Watch Video Solution

15. Write the following in the standard notation
$100 \times 7+10 \times 3+8$

## - Watch Video Solution

16. Write the following in the standard notation
$100 \times 9+10 \times 9+1$

- Watch Video Solution

17. Write the following in the standard notation
$100 \times 8+10 \times 8+8$

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18. Write the place of numbers underlined?

45618

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## Miscellaneous Exercise On Chapter 10

1. Write the place of numbers underlined?

12372
2. Write the place of numbers underlined?

22511

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3. Write the place of numbers underlined? 91623

- Watch Video Solution

4. Write the place of numbers underlined?
$7 \underline{2876}$

- Watch Video Solution

5. Write the place of numbers underlined?

10925

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6. Write the place of numbers underlined?
$2 \underline{3} 971$

- Watch Video Solution

7. Write the place of numbers underlined?
$326 \underline{2} 1$

- Watch Video Solution

8. Write the place of numbers underlined? 56843

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9. Write the place of numbers underlined?

## 972687

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10. Find the product of the following
$11 a b^{3}, 9 a^{2}$

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11. Find the product of the following
$9 p^{2}, 2 q^{3}$

## (D) Watch Video Solution

12. Find the product of the following
$5 a^{3} b, 2 b^{3} c$

- Watch Video Solution

13. Find the product of the following
$6 x^{2} y, 21 x y^{2}$

- Watch Video Solution

14. Find the product of the following
$12 x^{2} y z^{2}, 5 x^{2}$

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15. Find the product of the following
$5 a^{2} b^{2}, 8 a^{3}$

- Watch Video Solution

16. Find the product of the following
$6 x^{2} y, 6 x^{2}$

- Watch Video Solution

17. Find the product of the following $2 p^{3} q, 7 p q^{4}$

## D Watch Video Solution

18. Find the product of the following
$13 p^{2} q r, 2 p q^{3}$

## - Watch Video Solution

19. Find the product of the following
$5 a^{3} b, 7 a b^{2}$

- Watch Video Solution

20. Find the product of the following pairs
$11 p^{2} q r, 6 p^{2}$

## D Watch Video Solution

21. Find the product of the following pairs
$7 a b^{3}, 10 a^{2}, 2 b^{2}$

- Watch Video Solution

22. Find the product of the following pairs
$17 x^{2} y, 2 y^{2}$

- Watch Video Solution

23. Find the product of the following pairs $3 x^{2}, 5 y^{2}, 4 z^{2}$

## D Watch Video Solution

24. Find the product of the following pairs
$3 a^{2} b, 6 a b^{3} c^{2}$

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