

# INDIAN SCHOOL AL WADI AL KABIR

**Class IX,**

**10-12-2020**

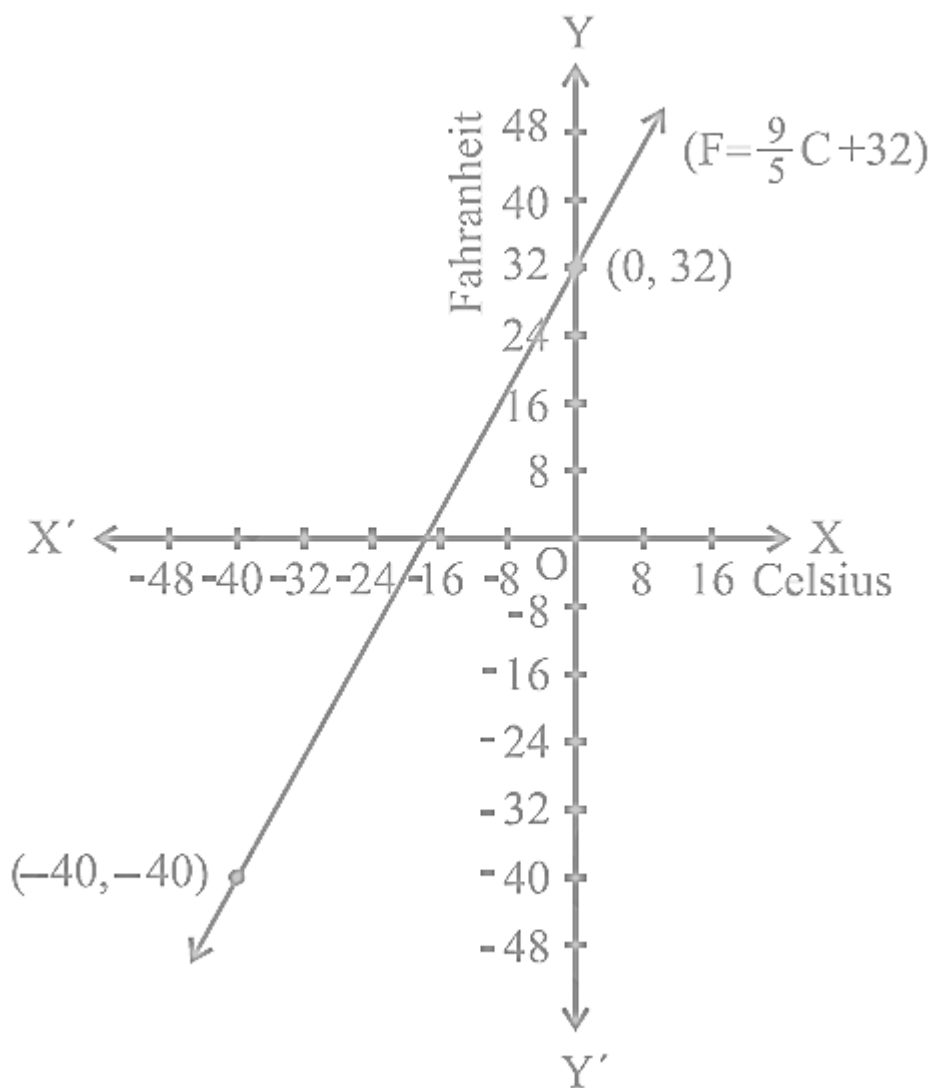
## Mathematics Practice Worksheet -3

### 1 Mark Questions

1.	The diagonals of which quadrilateral are equal and bisect each other at 90°?	Square.
2.	Name the quadrilateral formed by joining the midpoints of consecutive sides of a Rhombus	rectangle
3.	Linear equation $x - 2 = 0$ is parallel to which axis?	y-axis
4.	How many linear equations in $x$ and $y$ can be satisfied by $x = 1$ and $y = 2$ ?	Infinitely many.
5.	Find 'a', if linear equation $3x - ay = 6$ has one solution as $(4, 3)$	$a=2$
6.	In a sample study of 200 people, it was found that 180 people have a high school certificate. If a person is selected at random, find the probability of having a high school certificate.	$\frac{9}{10}$
7.	Find the class mark of the class 130-140.	135
8.	Find out which of the following has $x = 2, y = 1$ as a solution i) $2x + 5y = 9$ ii) $5x + 3y = 14$ iii) $2x + 3y = 7$	(i) (iii)

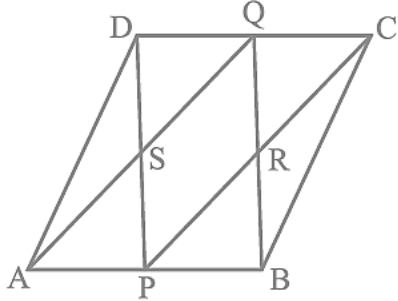
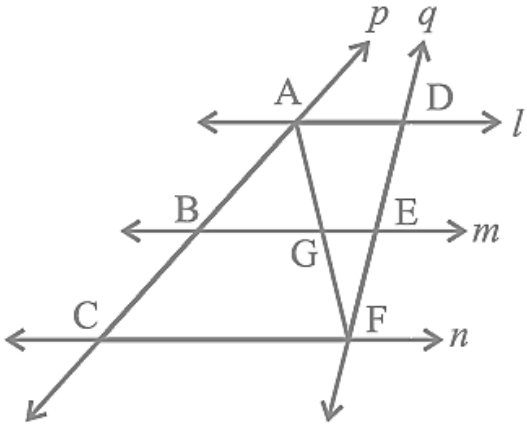
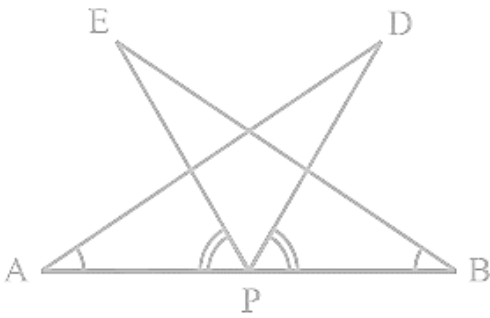
### Case study based question

9.	<p>In countries like USA and Canada, temperature is measured in Fahrenheit, whereas in countries like India, it is measured in Celsius. Here is a linear equation that converts Fahrenheit to Celsius:</p> $F = \left(\frac{9}{5}\right)C + 32$ <p><b>Refer the graph</b> (shown below) of the linear equation above using Celsius for x-axis and Fahrenheit for y-axis.</p> <p>(i) If the temperature is 5°C, what is the temperature in Fahrenheit?</p> <p>(ii) If the temperature is 23°F, what is the temperature in Celsius?</p> <p>(iii) If the temperature is 0°C, what is the temperature in Fahrenheit and if the temperature is 0°F, what is the temperature in Celsius?</p> <p>(iv) Is there a temperature which is numerically the same in both Fahrenheit and Celsius? If yes, find it.</p>	<p>(i) 41°F</p> <p>(ii) -5°C</p> <p>(iii) 32°F -17.8°C</p> <p>(iv) Yes -40°</p>
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**2 Mark Questions**

10.	In a trapezium ABCD, $AB \parallel CD$ . Calculate $\angle C$ and $\angle D$ if $\angle A = 55^\circ$ and $\angle B = 70^\circ$	$\angle D = 125^\circ$ $\angle C = 110^\circ$
11.	Calculate all the angles of a quadrilateral if they are in the ratio 2:5:4:1.	$60^\circ, 150^\circ$ $120^\circ, 30^\circ$
12.	If one angle of a parallelogram is twice of its adjacent angle, find the angles of the parallelogram.	$120^\circ, 60^\circ,$ $120^\circ$ and $60^\circ.$
13.	Two consecutive angles of a parallelogram are $(x + 60)^\circ$ and $(2x + 30)^\circ$ . What special name can you give to this parallelogram?	rectangle.
14.	The cost of a notebook is Rs 5 less than twice the cost of a pen. Write this statement as a linear equation in two variables.	$x - 2y + 5 = 0.$
15.	Express the linear equation $y - 2 = 0$ in the form $ax + by + c = 0$ and indicate the values of a, b and c .	$a=0, b = 1$ $c = -2$

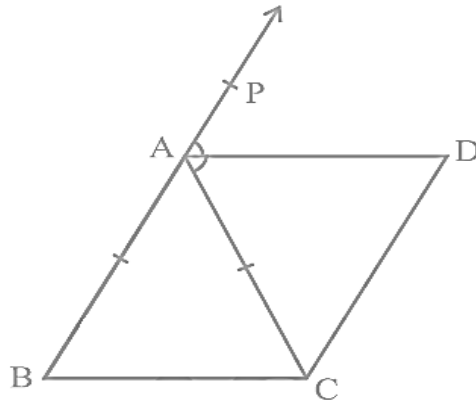
16.	Write four solutions for the equation $2x + y = 7$	
<b>3Mark Questions</b>		
17.	Prove that a diagonal of a parallelogram divides it into two congruent triangles.	
18.	Draw the graph of $2(x - 1) + 3y = 4$ and find the area of the triangle formed between the line & the axes.	
19.	Show that the line segments joining the mid-points of the opposite sides of a quadrilateral bisect each other.	
20.	<p>ABCD is a parallelogram in which P and Q are mid-points of opposite sides AB and CD. If AQ intersects DP at S and BQ intersects CP at R, show that:</p> <p>(i) APCQ is a parallelogram.  (ii) DPBQ is a parallelogram.  (iii) PSQR is a parallelogram.</p>	
21.	<p><math>l, m</math> and <math>n</math> are three parallel lines intersected by transversals <math>p</math> and <math>q</math> such that <math>l, m</math> and <math>n</math> cut off equal intercepts AB and BC on <math>p</math>. Show that <math>l, m</math> and <math>n</math> cut off equal intercepts DE and EF on <math>q</math> also.</p>	
22.	<p>Give the geometric representations of <math>2x + 5 = x + 3</math> as an equation</p> <p>(i) in one variable  (ii) in two variables</p>	
23.	<p>AB is a line segment and P is its mid-point. D and E are points on the same side of AB such that <math>\angle BAD = \angle ABE</math> and <math>\angle EPA = \angle DPB</math>. Show that</p> <p>i) <math>\triangle DAP \cong \triangle EBP</math>  (ii) <math>AD = BE</math></p>	

### 5 Mark Questions

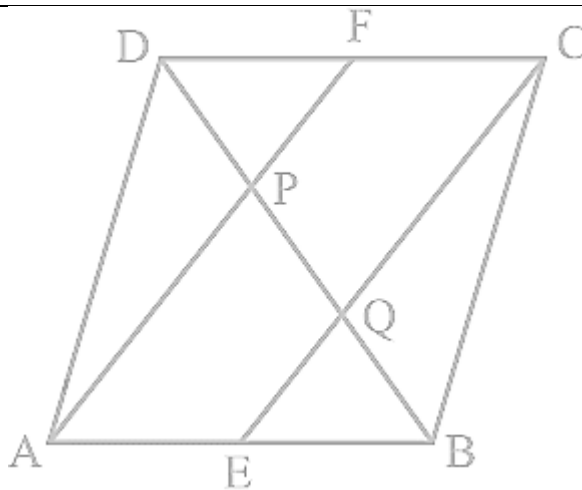
24. ABCD is a rectangle and P, Q, R and S are mid-points of the sides AB, BC, CD and DA respectively. Show that the quadrilateral PQRS is a rhombus.

25. Draw the graph of  $x + 2y = 4$  and write the co-ordinates where the line meets the x-axis and y-axis.

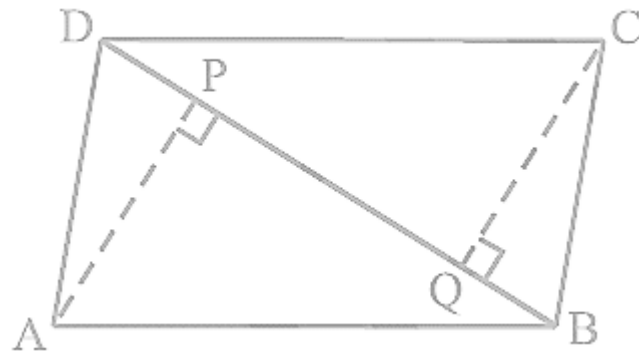
26. ABC is an isosceles triangle in which  $AB = AC$ . AD bisects exterior angle PAC and  $CD \parallel AB$ . Show that ABCD is a parallelogram.



27. In a parallelogram ABCD, E and F are the mid-points of sides AB and CD respectively. Show that the line segments AF and EC trisect the diagonal BD.



28. ABCD is a parallelogram and AP and CQ are perpendiculars from vertices A and C on diagonal BD. Show that  $AP = CQ$ .



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