17/12/14

INDIAN SCHOOL AL WADI AL KABIR

Dept of Mathematics 2014- 2015

Class IX – Winter Holiday Worksheet

1. Show that the points A (1, 2), B (-1, -6), C (0, -7) lie on the graph of the linear equation $y = 9x + 7$.

2. If the point (2, -2) lies on the graph of linear equation $5x + ay = 4$, find the value of a.

3. Draw the graph of the linear equation $5x + 6y = 30$. Write the coordinates of the points where this line intersects the x-axis and the y-axis. Also use this graph to find the area of triangle formed by the line and the coordinate axes.

4. The present age of a girl is two fifth the age of her father. Express this statement as a linear equation in two variables. Also find from the graph
   a) the age of the girl when the father is 40 years
   b) the age of father when the girl is 22 years.

5. In a class of 45 students , the marks obtained in a weekly test are as follows:

Marks	16-20	21-25	26-30	31-35	36-40	41-45	46-50
No. of students	2	9	6	7	13	5	3

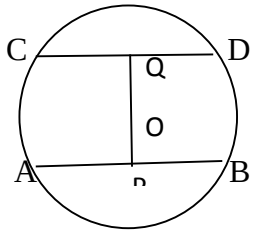
   Draw a frequency polygon for the following data.

6. P and Q are the midpoints of the opposite sides AB and CD of a parallelogram ABCD. AQ intersects DP at S and BQ intersects CP at R. Show that PQRS is a parallelogram.

7. P is the midpoint of the side CD of a parallelogram ABCD. A line through C parallel to PA intersects AB at Q and DA produced at R. Prove that DA = AR and CQ = QR.

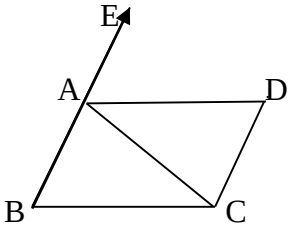
8. E is the midpoint of a median AD of ΔABC and BE is produced to meet AC at F. Show that $AF = \frac{1}{3} AC$.

9. In the figure, AB and CD are two parallel chords of a circle with centre O and radius 5cm such that AB = 8cm and CD = 6cm. If OP is perpendicular to AB and OQ is perpendicular to CD, determine the length of PQ.



10. EFGH is a rectangle. A, B, C and D are mid-points of the sides EF, FG, GH and EH respectively. Show that ABCD is a rhombus.

11. In the figure, ABC is an isosceles triangle in which AB = AC, CD ‖ AB and AD is the bisector of the exterior angle CAE of ΔABC. Prove that ∟CAD = ∟BCA and ABCD is a parallelogram.



12. In the figure, ABCD is a quadrilateral in which AB = BC and AD = CD. Prove that
    (i) ΔABD is congruent to ΔCBD
    (ii) BD is the bisector of ∟ABC and ∟ADC
    (iii) ΔAOD is congruent to ΔCOD
    (iv) ∟AOD = ∟COD = 1 right angle.