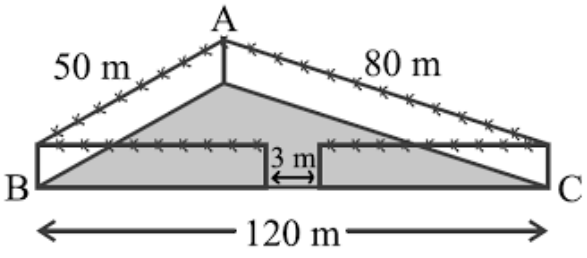
INDIAN SCHOOL AL WADI AL KABIR

Department: Mathematics

Class IX **Practice Worksheet - 2** **10-01-2021**

Qn. no:	Part A
	Section I (1 mark each.)
Q.1.	Find the coefficient of x^2 in the expansion of $(x-2)^3$
Q.2.	Find $525^2 - 475^2$, using suitable identity.
Q.3.	Find the degree of the polynomial $(x^3 + 5)(4 - x^5)$
Q.4.	Find the value of k, if (x – 2) is a factor of $p(x) = 2x^2 + 3x - k$.
Q.5.	Find the value of $x^2 + y^2$, if x + y = 9 and xy = 20.
Q.6.	What is the area of an equilateral triangle with side 2cm?
Q.7.	If the sum of two sides of a triangle is 17cm and its semi-perimeter is 15cm, then find the length of its third side.
	Section II (1 x 4 = 4 marks) **Case study-based question**
Q.8	A triangular park ABC has sides 120m, 80m and 50m as shown in the figure. There is a gate 3m wide on one side of the park. A gardener *Dhania* has to put fence all around it and also plant grass inside. 
(a)	Find the semi-perimeter of the park. (i) 500m (ii) 125m (iii) 250m (iv) 253m

(b)	How much area does she need to plant grass? (i) $375m^2$ (ii) $375\sqrt{5}m^2$ (iii) $375\sqrt{15}m^2$ (iv) $750m^2$
(c)	Find the length of the wire needed to fence the park leaving a space 3m wide for a gate on one side. (i) 247m (ii) 117m (iii) 123m (iv) 128m
(d)	Find the cost of fencing at the rate of ₹ 20 per metre. (i) ₹2340 (ii) ₹ 2460 (iii) ₹ 4560 (iv) ₹ 4940

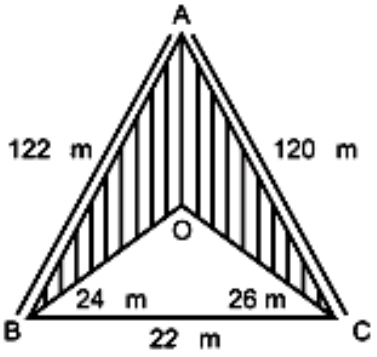
Part B:

Section III (2 marks each)

Q.9.	Show that (x – 1) is a factor of the polynomial p(x) = $2x^3$ - $3x^2$ + 7x – 6.
Q.10.	If the area of an equilateral triangle is $81\sqrt{3}\ cm^2$, then find its perimeter.
Q.11.	Find the area of a triangle whose sides are 11m, 60m and 61m.
Q.12.	The length of sides of a triangle are in the ratio 3 : 4 : 5 and perimeter is 144cm. Find its area.
Q.13.	Without plotting the points indicate the quadrant in which they lie, if (i) ordinate is 5 and abscissa is -3. (ii) abscissa is -2 and ordinate is -6

Section IV (3 marks each)

Q.14.	Check whether the polynomial p(x) = $3x^4$ + $4x^3$ – 10 x^2 – 5x – 30 is a multiple of (x – 2) and (x + 3).
Q.15.	The sides of a triangle are 120m, 170m and 250m. Find area of the triangle and also find its height when the base is 250m.
Q.16.	Find the area of an isosceles triangle whose equal sides are 15cm each and third side is 12cm.
Q.17.	Find the value of $27x^3 + 8y^3$, if 3x + 2y = 20 and xy = $\frac{11}{9}$
Q.18.	Factorize x^3- $3x^2$ – 9x - 5
Q.19.	Factorize: $8p^3 + \frac{12}{5}p^2 + \frac{6}{25}$p + $\frac{1}{125}$

Q.20.	The maximum temperatures (in degree Celsius) reported in a city for the month of April by the Meteorological Department, are given below: 27.4, 28.3, 23.9, 23.6, 25.4, 27.5, 28.1, 30.5, 29.7, 30.6, 28.4, 31.7, 32.2, 32.6, 33.4, 35.7, 36.1, 37.2, 38.4, 40.1, 40.2, 40.5, 41.1, 42.0, 42.1, 42.3, 42.4, 42.9, 43.1, 43.2 Construct a continuous grouped frequency distribution table.
	Section V (5 marks each)
Q.21.	If the polynomial $3x^3 + ax^2 - 11x + 3$ is exactly divisible by (x – 1), then find the value of a. Hence, factorize the polynomial.
Q.22.	Plot the points A (1, 3), B (1, -1), C (7, -1) and D (7, 3). Join the points in order and identify the figure thus formed. Write the co-ordinates of the point of intersection of the diagonals.
Q.23.	Find the area of the shaded region in the figure. How many triangular flower beds of $6m^2$ can be made from this area. [Use $\sqrt{105}$ = 10.25]. 

ANSWERS

Q.1	-6	**Q.2**	50000	**Q.3**	8	**Q.4**	k = 14
Q.5	41	**Q.6**	$\sqrt{3}cm^2$	**Q.7**	13cm	**Q.8**	(a) (ii), (b) (iii) (c)(i), (d) (iv)
Q.10	54cm	**Q.11**	$330m^2$	**Q.12**	$864cm^2$	**Q.13**	(i) II Quadrant (ii) III Quadrant
Q.14	Multiple of (x-2), Not a multiple of (x+3)	**Q.15**	$9000m^2$, 72m	**Q.16**	$18\sqrt{21}cm^2$	**Q.17**	7560
Q.18	(x + 1) (x + 1) (x – 5)	**Q.19**	$\left(2p + \frac{1}{5}\right)^3$	**Q.21**	a = 5, (x-1) (x+3) (3x-1)	**Q.22**	Rectangle (2, 1)
Q.23	$1074m^2$, 179						

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