Himalaya International School
Class - VIII
Subject - Mathematics
Practice Assignment - 2
Algebraic expressions and Identities
Factorisation
Linear Equations in One Variable
Percentage and it's Applications

Q1 Add: $\frac{5}{3}x^3 + 3x + \frac{6}{5} + 3x^2, \frac{5}{3}x^3 - \frac{4}{3} + \frac{2}{3}x^2 - 3, \frac{2}{3}x + \frac{5}{2}x^3 - \frac{5}{3}x^2$

Q2 The perimeter of a triangle is $5x^2+3x-1$ and two of its sides are $2x-5+7x^2$ and $3x^2+4-2x^3+x$. Find the third side of the triangle.

Q3 Simplify the following expression and evaluate it for a= -1.

$5a^2(a-2) - 2a^3(a+4) - 5a(a-2)$

Q4 Solve the following equations:

i) $2x + \frac{3}{2}x + 1 = 5x + \frac{2}{5}x + 3$

ii) $5-(2x-1)(x-1) = (1-x)(2x-2)$

Q5 The denominator of a rational number is greater than its numerator by 10. If the numerator is increased by 19 and the denominator is decreased by 1, the number obtained is $\frac{3}{2}$. Find the rational number.

Q6 One of the two digits of a two-digit number is twice the other digit. If you interchange the digit of their two-digit number and add the resulting number to the original number, you get 66. What is the original number?

Q7 Factorise the following algebraic expressions:

i) $9(3x+4y)^2 - 15(3x+4y)$

ii) $ab - bc - ac + c^2 + ab - bc$

iii) $a^2x + abx + ac + aby + b^2y + bc$

iv) $1 + a + b + c + ab + ac + bc + abc$

Q8 Evaluate:

i) $(602)^2 - (598)^2$

ii) $10x^2 + x - 3$

Q9 Divide the following expressions:

i) $16a^4bc - 12ab^3c + 8a^2bc^4$ by $4abc$

ii) $33(x^3 - 2x^2 - 15x)$ by $11x(x-5)$

iii) $6x^5 - x^4 + 4x^3 - 5x^2 - x - 15$ by $2x^2 - x + 3$

Q10 i) What percent of 108 km/h is 15 m/s?

ii) If 32% of a number is 8, find the number.

Q11 In a school, there were boys and girls. If 55% of the students in a school are boys and the number of girls is 900, find out number of boys.

Q12 In an examination, a student has to score 40% marks to pass. He gets 40 marks and fails by 40 marks. Find the maximum number of marks.

Q13 The value of a car depreciates every year by 20%. Find out its value after 2 years if its present value is Rs. 350000.

Q14 Marks scored by A are 25% more than that of B. By what per cent are B's marks less than that of A.

Q15 Subhash purchased a hundred-second hand TV sets at Rs.8700 per TV. He spent Rs.1000 per TV set for transportation and Rs.10000 for advertising the sale of these TV sets. If he sold all the TV sets at Rs.10584 per set, find his profit or loss per cent.

Q16 The market price of a book is Rs. 225. If the shopkeeper allows 12% discount to his customers and gains 25%, find the cost price of the book.

Q17 The present age of Aditya's mother is four times that of Aditya's age. Aditya's age ten years from now will be half of his mother's present age. What are their present ages

Q18 The ages of Asha and Nirmal are in the ratio 5:6. Five years from now their ages will be 6:7. Find their present ages.

Q19 If $x+\dfrac{1}{x}= 8$, find the values of the following:

i) $x^2 + \dfrac{1}{x^2}$

ii) $x^4 + \dfrac{1}{x^4}$

Q20 Bullocks are commonly used for backbreaking tasks like pulling carts piled high with up to 4 tons of sugarcane or other goods like metal pipes and cinderblocks. Sometimes, they're forced to haul such loads on busy city streets filled with traffic and exhaust. A farmer sold two bullocks for Rs. 18000 each. On

one bullock he gained 20% and on the other he lost 20%. Find his total gain or loss.