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1st term – Revision Exercise 2

Factors of Quadratic Expressions

Exercise 1.1

- 1. Write each of the following algebraic expressions as a product of its factors. *a*) 4x + 12 *b*) 2a(5x - y) + b(5x - y) *c*) $x^2 - 4xy - 5x + 20y$
- 2. Factor each of the following trinomial quadratic expressions. Hint-: $x^2 + 3x - 40 \implies x^2 - 5x + 8x - 40$
 - a) $x^{2} + 13x + 42$ b) $x^{2} - 7x - 18$ c) $x^{4} + 6x^{2} - 7$ d) $-x^{2} + 6x + 6$ e) $-a^{2} - 8a - 15$ f) $a^{2} + 9ab - 36b^{2}$
- 3. Write each of the following algebraic expressions as a product of two factors.

a)
$$x^{2} + 7x + 12$$

b) $p^{2} + p - 30$
c) $x^{2} - 3x - 40$
c) $x^{2} - 15x + 26$
e) $6a^{2} - 14a - 40$
f) $- 12x^{2} + 26xy - 10y^{2}$

4. Find the value of each of the following numerical expressions using the knowledge on the factors of trinomial quadratic expressions.

a)
$$6^2 + 11 \times 6 + 28$$
 b) $7^2 + 2 \times 7 - 48$ c) $103^2 - 41 \times 103 + 114$

Exercise 1.2

1. Factor the following expressions using the knowledge on Factors of the difference of two squares.

a) $x^2 - 25$ b) $49 - x^2$ c) $(x + 2)^2 - 4$ d) $(a - 3)^2 - (a + 2)^2$ e) $x^4 - 81$ f) $1 - 64y^2$

- 2. A square of length 5x is removed from a square shaped thin lamina of length 8x as shown in figure.
 - I) Express the area of the square before removing the small square portion.
 - II) Write an expression for the remaining area of the lamina. If x = 2 cm show that the remaining area of the lamina 156 cm^2 using the knowledge on factors.



Triangles



1. Find the magnitudes of the angles represented by the letters in each of the fgures.



2. O is the center of the given circle.A,D and C are three points on the circle. If OA // DC

I) Find $O\hat{D}A$. II) Find $A\hat{C}B$. III) Show that ABC is an isosceles triangle.



3. ABC is an isosceles triangle. If AB = AC and $D\hat{A}E = F\hat{A}G$.

I) Find $A\hat{E}F$ and $A\hat{F}E$.

II)What can you say about triangle AFE.Explain.



Exercise 3.1

- 1. Write whether each of the following cases are direct proportions or inverse proportions.
 - a) Amount of pens and their total cost
 - b) Time taken to a vehicle to travel to a certain distance and its speed.
 - c) perimeter of a circle and its radius.
 - d) Time taken to complete a certain task and no of workers.
 - e) No of units (Reading in the electric meter) and the electric bill.
 - f) No of people and amount of water they consume.

Exercise 3.2

- 1. It takes 5 men 12 days to complete a certain task.
 - I) What is the magnitude of the task in man days?
 - II) How many days will it take one man to complete the same task?
 - III) How many days will it take 10 men to complete the same task?
- 2. In Indian ocean a ship called X-press Pearl caught fire. As estimated it would take 14 days for three boats to save the ship. After four days of Ari Lankan navy's attempt two Indian fire boats joined to complete the task. Show that the fire can be controlled before for days as predicted.
- 3. Six men take 8 days to complete a certain task by working 5 hours a day. The amount to be paid per person is Rs 800.To complete the same task by working 8 hours by 10 people required Rs 1200 per each.
 - I) If the task is completed by the first team what would be the total cost?
 - II) What is the most cost effective option ?(first team or second team.)