Tender Heart High School, Sector 33B, Chd.

Revision

Section A (Attempt all questions)

Question 1

(a) Solve $(5 - 6\sqrt{3})^2$

(b) Evaluate $(137)^2$ using identity $(a+b)^2$

(c) Factorise $x^2 + 9x + 18$

(d) Solve $\sqrt{\left(\dfrac{3}{5}\right)^{1-2x}} = 4\dfrac{17}{27}$

Question 2

(a) Expand $(5x - 3y)^3$

(b) Rationalise the denominator of $\dfrac{6}{\sqrt{5} - \sqrt{3}}$

(c) Calculate the amount and the compound interest on ₹ 12500 for 2 years at $1\% $ per annum, compounded annually.

Question 3

(a) If 'a' and 'b' are rational numbers and $\dfrac{2+\sqrt{3}}{2-\sqrt{3}} = a + b\sqrt{3}$, find the values of 'a' and 'b'.
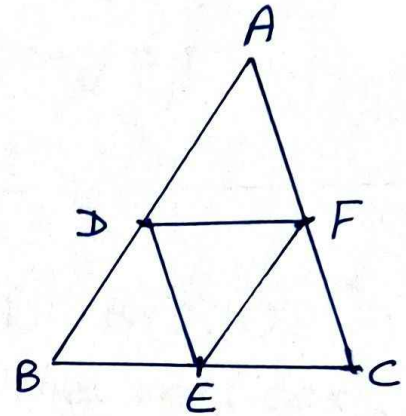
(b) Factorise $27x^3 - \dfrac{125}{x^3}$

(c) Simplify $\dfrac{5^{n+3} - 6 \times 5^{n+1}}{9 \times 5^n - 2^2 \times 5^n}$

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Class 9, Mathematics (Revision)

Question 4

(a) Expand $\left(\frac{1}{2}x - \frac{2}{3}y\right)^2$
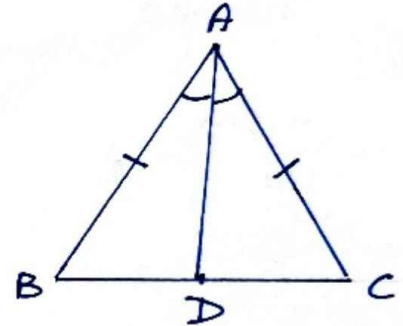
(b) In the adjoining figure, D, E, F are the mid-points of the sides AB, BC and CA respectively.

(i) If AC = 7.4 cm, find DE

(ii) If DF = 4.1 cm, find BC

(c) In the given figure, AB = AC and AD is the bisector of ∠A

Prove that:—

(i) D is the mid-point of BC

(ii) AD ⊥ BC

Question 5

(a) Express $2.\overline{8}$ as a vulgar fraction in simplest form.

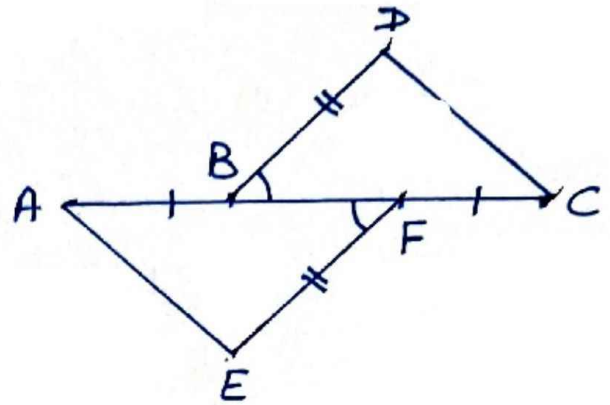(b) What sum of money will amount to ₹ 7840 in 2 years at 12% per annum, compounded annually?

Question 6

(a) In the given figure, $AB = CF$, $EF = BD$ and $\angle AFE = \angle DBC$
Prove that $\triangle AFE$ is congruent to $\triangle CBD$.

(b) In $\triangle ABC$, $\angle C = 90°$. If D is the mid-point of BC, prove that $AB^2 = 4AD^2 - 3AC^2$

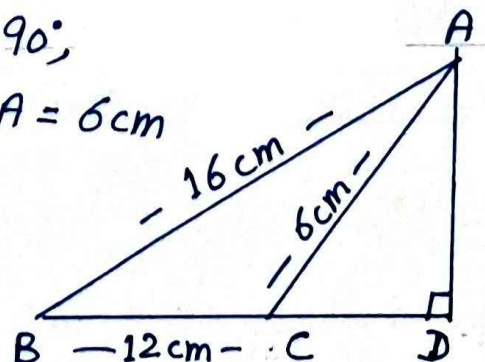(c) Represent the following rational number on number line.

(i) $\dfrac{3}{4}$

(ii) $\dfrac{-15}{7}$

Question 7

(a) If $1960 = 2^a \times 5^b \times 7^c$, find the values of a, b, c.

(b) In the given figure, $\angle D = 90°$, $AB = 16\,cm$, $BC = 12\,cm$ and $CA = 6\,cm$
Find CD.

Class 9, Mathematics (Revision)

Question 8

(a) Evaluate $\dfrac{(32)^{2/5} \times (4)^{-\frac{1}{2}} \times (8)^{\frac{1}{3}}}{2^{-2} \div (64)^{-1/3}}$

(b) If $\dfrac{5+2\sqrt{3}}{7+4\sqrt{3}} = a - b\sqrt{3}$, find the value of 'a' and 'b'.

Question 9

(a) Arrange the following numbers in ascending order :- $\sqrt[3]{2}$, $\sqrt{3}$, $\sqrt[6]{5}$

(b) Find the amount and the compound interest on ₹62500 for $1\frac{1}{2}$ years at 8% per annum, compounded half-yearly.

(c) If $x^2 + \dfrac{1}{x^2} = 18$, find the value of

   (i) $x - \dfrac{1}{x}$ (ii) $x^3 - \dfrac{1}{x^3}$

Question 10

(a) Factorise $3 - 12(x-y)^2$

(b) In the given figure
   $AD = BC$ and $AC = BD$.
   Prove that

   $\angle OAB = \angle OBA$