Revision Worksheet / Question Bank

1. Let $x = \frac{7}{20 \times 25}$ be a rational number. Then x has decimal expansion which terminate.

$\frac{7}{20 \times 25} = \frac{7}{500} = \frac{7}{2^2 \times 5^3}$

(b) after 3 places of decimal

2. The decimal expansion of $\frac{63}{72 \times 175}$

$\frac{63}{72 \times 175} = \frac{63}{126000} = 0.05$

(a) terminating

3. HCF = 4 LCM = 9696

(d) product = $4 \times 9696 = 38784$

4. HCF(a,b) =

(a) $a \times b$

5. If HCF of two no. is 1, then the two number called.

(b) relatively prime or coprime

6. If α, β are the zeroes of the polynomial $f(x) = x^2 + x + 1$

$$\alpha + \beta = \frac{-b}{a} = -1 \qquad \alpha\beta = \frac{c}{a} = 1$$

(c) $\frac{1}{\alpha} + \frac{1}{\beta} = \frac{\alpha+\beta}{\alpha\beta} = \frac{-1}{1} = -1$ (c)

7. A quadratic polynomial whose sum $= -3$, product $= 2$

$$\alpha + \beta = -3 \qquad \alpha\beta = 2$$

$$x^2 - (\alpha+\beta)x + \alpha\beta = x^2 - (-3)x + 2$$
$$(b) = x^2 + 3x + 2$$

8. If α and β are the quadratic polynomial $px^2 - 2x + 3p$ $\alpha + \beta = \alpha\beta$ the p

$$\alpha + \beta = \frac{-b}{a} = \frac{2}{p} \qquad \alpha\beta = \frac{3p}{p} = 3$$

$\Rightarrow \frac{2}{p} = 3$

$\Rightarrow 3p = 2$

$\Rightarrow p = \frac{2}{3}$ (b)

9. $x^2 + 3x + k$, one zeroes is 2 then value of k

$$f(2) = (2)^2 + 3(2) + k$$
$$= 4 + 6 + k$$

(b) $\quad -10 = k$

10. If $19x - 17y = 55$, $17x - 19y = 53$ value of $x - y$

$$19x - 17y = 55$$
$$17x - 19y = 53$$
$$36x - 36y = 108$$
$$x - y = 3$$

(c)

11. If $\frac{2}{x} + \frac{3}{y} = 13$ $\frac{5}{x} - \frac{4}{y} = -2$ $x+y$ equal

let $\frac{1}{x} = a$ $\frac{1}{y} = b$

$2a + 3b = 13$ —(i) $5a - 4b = -2$

$8a + 12b = 52$
$15a - 12b = -6$
$23a = 46$
$a = 2$ $b = 3$

$\frac{1}{x} = 2$ $\frac{1}{y} = 3$

$x = \frac{1}{2}$ $y = \frac{1}{3}$

$x+y = \frac{1}{2} + \frac{1}{3} = \frac{3+2}{6} = \frac{5}{6}$ (c)

12. $\frac{2}{4} = \frac{3}{K} = \frac{5}{10}$

$2K = 12$

(b) $K = 6$

13. $\frac{K}{6} = \frac{-5}{2}$

$2K = -30$

(a) $K = -15$

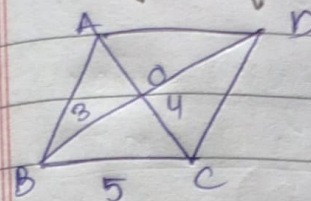
14. $\frac{1}{-3} = \frac{2}{-6} \neq \frac{5}{1}$

(d) no solution

15. (c) intersecting or coincident.

(2)

20. length of diagonals = 6cm, 8cm

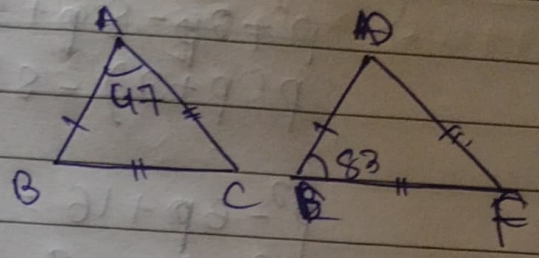


AC = 8cm BD = 6 cm
OC = 4cm BO = 3 cm

$BC = \sqrt{OC^2 + OB^2} = \sqrt{16+9} = \sqrt{25} = 5cm$

Perimeter = 5+5+5+5 = 20cm (A)

22. In ΔABC and ΔDEF
$\angle A = 47$ $\angle E = 83^\circ$



$180 - (47+83)$
$180 - 130$
(a) 50°

24. length of stick = 30m length of another stick = x
length of shadow = 15m length of shadow = 75m

$\frac{30}{15} = \frac{x}{75}$

$15x = 30 \times 75$

(a) $x = \frac{30 \times 75}{15} = 150m$

28. A(-2,3) B(6,7) C(8,3) D(x,y)

Midpoint of AC $= \frac{-2+8}{2}, \frac{3+3}{2} = \frac{6}{2}, \frac{6}{2} = (3,3)$

Midpoint of BD $= \frac{6+x}{2}, \frac{7+y}{2} =$

$\frac{6+x}{2} = 3$ $\frac{7+y}{2} = 3$

$6+x = 6$ $7+y = 6$

$x = 1$ $y = -1$

(b) 0, -1

24. A(8,p) B(4,3)

AB = 5cm

$AB = \sqrt{(8-4)^2 + (p-3)^2}$

$= \sqrt{16 + p^2 + 9 - 6p}$

$\sqrt{p^2 - 6p + 16} = 25)^2$

$p^2 + 2p - 8p + 16$

$p(p+2) - 8(p+2)$

$p^2 - 6p + 16 = 25$

$p^2 - 6p - 9$

$p^2 - 3p - 3p - 9$

$p(p-3) - 3(p-3)$

$p = 3 + 3 = 6$ (a)

25. P(1,2) A(-2,1) B(7,4)

$1 = \frac{7k - 2}{k+1}$

$k + 1 = 7k - 2$

$3 = 6k$

$\frac{1}{2} = k = 1:2$ (d)

27. $AB = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

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

$= \sqrt{(\sqrt{3}a)^2 + (-a)^2}$

$= 3a + a$

$= 4a$ (d)

28. $AB = \sqrt{(-a-a)^2 + (-5b)^2}$

$= \sqrt{(-2a)^2 + (-2b)^2}$

$= \sqrt{4a^2 + 4b^2}$

$= 2\sqrt{a^2 + b^2}$ (c)

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35. $p = a^2\cot^2\theta + b^2\operatorname{cosec}^2\theta$

$q^2 = b^2\cot^2\theta + a^2\operatorname{cosec}^2\theta$

$p^2 - q^2 = (p+q)(p-q)$

$a^2\cot^2\theta + b^2\operatorname{cosec}^2\theta - b^2\cot^2\theta - a^2\operatorname{cosec}^2\theta$

$(a^2-b^2)(\cot^2\theta) + (b^2-a^2)(\operatorname{cosec}^2\theta)$

$(a^2-b^2)(\cot^2\theta) - (a^2-b^2)(\operatorname{cosec}^2\theta)$

$(a^2-b^2)(\cot^2\theta - \operatorname{cosec}^2\theta)$

(a) a^2-b^2

36. $x = a\cos\theta \quad y = b\sin\theta$

$a^2\cos^2\theta + a^2b^2\sin^2\theta$

$a^2b^2(\cos^2\theta + \sin^2\theta)$

$= a^2b^2(1)$

37. $(1+\tan^2\theta)(1-\sin\theta)(1+\sin\theta)$

$(1+\tan^2\theta)(1-\sin^2\theta)$

$(1+\tan^2\theta)(\cos^2\theta)$

$\cos^2\theta + \cos^2\theta \times \frac{\sin}{\cos^2} = (c)\ 1$

38. (b) $2\operatorname{cosec}\theta$

34. $2\pi r = \pi r^2$

$2r = r^2$

$r = 2r = 4$ (b)