MATHS

BOOKS - R G PUBLICATION

MODEL PAPER 2

Exercise

1. If the HC.F of 55 and 99 is expressible in the form 55 m -99, then the value of m is :

A. 4

B. 2

C. 1

D. 3

Answer:

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2. If α and β are the zeroes of the polynomial $5x^2 - 7x + 2$, then sum of their reciprocals is:

A. $\dfrac{7}{2}$

B. $\dfrac{7}{5}$

C. $\dfrac{2}{5}$

D. $\dfrac{14}{25}$

Answer:

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3. If $PQR{\sim}XYZ, Q = 50°$ and $R = 70°$, then

X+ Y is equal to:

A. $70°$

B. $50°$

C. $120°$

D. $110°$

Answer:

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4. If $\sqrt{2}\sin(60° - \alpha) = 1$, then α is :

A. $45°$

B. $15°$

C. $60°$

D. $30°$

Answer:

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5. If $\cos(20° + A) = \sin 30°$, then the value

of A is :

A. $30°$

B. $40°$

C. $60°$

D. $20°$

Answer:

6. If x=a,y=b is the solution of the equations x-y=2 and x+y=4 then the values of a and b are respectively,

a)3 and 1 b)-1 and -3 c)6 and 4 d)5 and 3

A. 3 and 5

B. 5 and 3

C. 3 and 1

D. -1 and -3

Answer:

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7. Explain why $7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1 + 7$

is a Composite Number.

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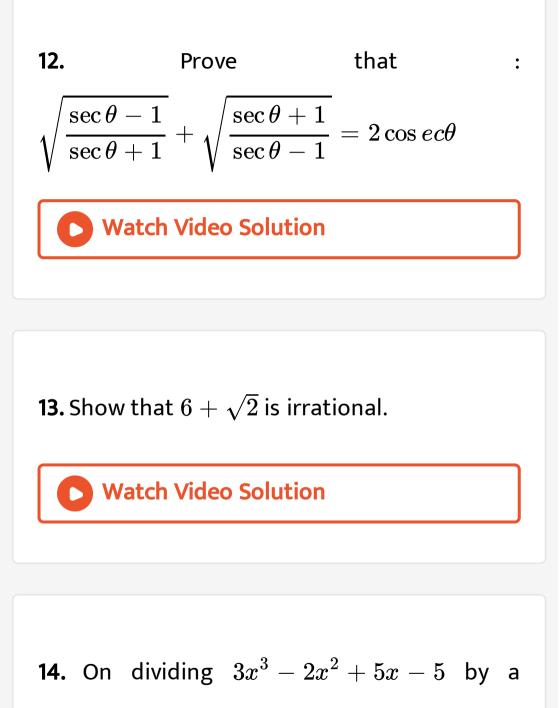**8.** Prove that $15 + 17\sqrt{3}$ is an irrational number.

9. Divide $x^4 - 3x^2 + 4x + 5$ by $x^2 - x + 1$, find quotient and remainder.

10. Without drawing graphs, check whether the following pair of linear equations is consistent or inconsistent. 5x-4y+8=0, 7x+6y-9=0.

11. Find the value of $\tan 60°$ geometrically.

12. Prove that :

$$\sqrt{\frac{\sec\theta - 1}{\sec\theta + 1}} + \sqrt{\frac{\sec\theta + 1}{\sec\theta - 1}} = 2\cos ec\theta$$

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13. Show that $6 + \sqrt{2}$ is irrational.

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14. On dividing $3x^3 - 2x^2 + 5x - 5$ by a polynomial p(x), the quotient and remainder

are $x^2 - x + 2$ and -7 respectively. Find p(x).

15. If $\cos\theta - \sin\theta = \sqrt{2}\sin\theta$ prove that $\cos\theta + \sin\theta = \sqrt{2}\cos\theta.$

16. Prove that the ratio of the areas of two similar triangles is equal to the square of the ratio of their corresponding sides.

17. An army contingent of 1000 members is to march behind an army band of 56 members in a parade. The two groups are to march in the same number of columns. What is the maximum number of columns in which they can march?

18. In a trapezium ABCD, AB is parallel to CD and AB = 2CD. If area of $\triangle AOB = 84cm^2$, find the area of $\triangle COD$.

19. If α,β are the zeroes of the polynomial $x^2 - 3x + 2$, then find the polynomial whose zeroes are 3α and 3β.

20. Find the sum of all the two-digit natural number which are divisible by 4.

21. Find the value of the middle most term(s) of the arithmetic progression: -11,-7,-3,.........49.

22. Prove that the angle between the two tangents drawn from an external point to a circle is supplementary to the angle subtended by the line-segment joining the points of contact at the centre.

23. A solid metallic sphere of diameter 21 cm is melted and recast into a number of smaller

cones each of diameter 7 cm and height 3 cm.

Find the.number of cones so formed

24. Two tangents PA and PB are drawn to circle with centre O from an external point P. Prove that $\angle APB = 2\angle OAB$

25. The angle of elevation of the top of a building from the foot of the tower is $30°$ and the angle of elevation of the top of the tower from the foot of the building is $60°$.If the tower is 50 m high,find the height of the building

26. A train travels at a certain average speed for a distance of 63 km and then travels a

distance of 72 km at an average speed of 6km/hour more than its original speed. If it takes 3 hours to complete the total journey, what is its original average speed?