

ANSWER KEY

Maths - 9th

one words

- 1) ϕ
- 2) A'
- 3) $\sqrt{5}$
- 4) 4
- 5) $-\frac{3}{2}$
- 6) 6
- 7) 2:1
- 8) 0
- 9) $2\bar{x}$
- 10) Probability
- 11) -1
- 12) 1
- 13) trimodal
- 14) $8\sqrt{21}$
- 15) 46
- 16) $\notin \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$

2 marks

17) $P(\bar{A}) = 1 - P(A)$
 $= 1 - 0.72$
 $= 0.28$

18) Mode = 21, 22

19) $A = \{5, 6\}$
 $n(A) = 2$
 $P(A) = \frac{2}{6} = \frac{1}{3}$

20) $P(A) = \frac{91}{100}$
 $P(\bar{A}) = 1 - P(A)$
 $= 1 - 0.91$
 $= 0.09$
 $= \frac{9}{100}$

21) $\frac{3+4+6+9+n}{5} = 6$
 $22+n = 30$
 $n = 30 - 22$
 $n = 8$

22) $n = 6$
 $\bar{x} = 45$
 $\sum x = 180$

$\bar{x} = \frac{180}{6} = 30$

23) $(x+3)(x+6)$

24) $9x = 4$
 $x = \frac{4}{9}$

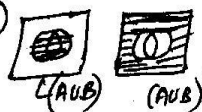
25) $\frac{7}{2 \times 5^0}$
 It is terminating

26) $\sqrt[5]{32}$
 $= \sqrt[5]{2^5}$
 $= 2$

27) $(5a-4b)^2$
 $= (a-b)^2 = a^2 - 2ab + b^2$
 $(3a)^2 - 2(3a)(4b) + (4b)^2$
 $9a^2 - 24ab + 16b^2$

28) $n(A) = 4$
 $n(P(A)) = 2^4 = 16$

29) $n(A \cup B) = n(A) + n(B) - n(A \cap B)$
 $= 4 + 5 - 7$
 $= 2$

30) 

31) $\frac{\sqrt{35}}{\sqrt{7}} = \sqrt{\frac{35}{7}} = \sqrt{5}$

32) Coeff. of $x^2 = \pi$
 Coeff. of $x = -1$

33) a) mode is 6.
 b) $(n+a)(n+b)(n+c)$
 $= n^3 + n^2(a+b+c) + n(ab+bc+ca) + abc$
 $= 27x^3 - 27x^2 - 18x + 8$

$$138) i) p^2 - 6p - 16 \quad -16$$

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

$$ii) 8x^3 + 125y^3$$

$$(2x)^3 + (5y)^3 = (2x+5y)(4x^2+10xy+25y^2)$$

$$39) \sqrt[3]{5}, \sqrt[4]{4}, \sqrt[6]{3}$$

$$\text{LCM} = (3, 4, 6) = 12$$

$$\sqrt[3]{5^6} = 18\sqrt{5^6}$$

$$\sqrt[9]{4^2} = \sqrt[18]{16}$$

$$\sqrt[6]{3^3} = \sqrt[12]{27}$$

descending order:

$$\sqrt[3]{5}, \sqrt[4]{4}, \sqrt[6]{3}$$

$$40) \begin{array}{ccc} x & f & fx \\ 5 & 5 & 25 \\ 15 & 7 & 105 \\ 25 & 15 & 375 \\ 35 & 28 & 980 \\ 45 & 8 & 360 \end{array}$$

$$\Sigma f = 63 \quad \Sigma fx = 1845$$

$$43) n(s) = 400$$

$$n(A) = 191$$

$$P(A) = \frac{n(A)}{n(s)} = \frac{191}{400}$$

$$P(\bar{A}) = 1 - P(A) = 1 - \frac{191}{400} = \frac{209}{400}$$

$$44) x = \sqrt{5} + 2$$

$$x^2 = (\sqrt{5})^2 + 2(\sqrt{5})(2) + 2^2 = 5 + 4\sqrt{5} + 4 = 9 + 4\sqrt{5}$$

$$\frac{1}{x^2} = 9 - 4\sqrt{5}$$

$$x^2 + \frac{1}{x^2} = 9 + 4\sqrt{5} + 9 - 4\sqrt{5} = 18$$

$$45) i) 200057 \times 10^3$$

$$ii) 9.000002 \times 10^{-4}$$

$$50) R.D = 2 \quad (\text{both a \& b})$$

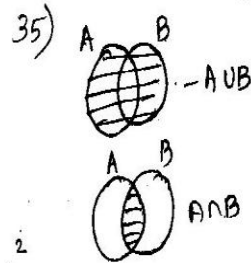
$$\text{triangle} = 4$$

$$\text{absector} = 2$$

$$\text{Centroid line} = 1$$

$$\text{Marking} = 1$$

$$34) \begin{array}{l} 210 \\ (x-7y)(5x+6y) \end{array} \begin{array}{l} -35 \\ 6 \\ 5 \\ 5 \end{array}$$



$$36) P(x) = x^2 - 2x - 8$$

$$x+2=0 \quad x-4=0$$

$$x=-2 \quad x=4$$

$$P(-2) = (-2)^2 - 2(-2) - 8 = 4 + 4 - 8 = 0$$

$(x+2)$ is a factor of $P(x)$.

$$\bar{x} = \frac{\Sigma fx}{\Sigma f} = \frac{1845}{63} = 29.3$$

$$41) l = 20, f = 46, f_1 = 38, f_2 = 34$$

$$\text{Mode} = l + \frac{f_1 - f_2}{2f_1 - f_2} \times c = 20 + \frac{46 - 38}{2(46) - 38 - 34} \times 10 = 20 + 4 = 24$$

$$\text{Mode} = 24$$

$$42) n(s) = 24$$

$$n(R) = 3$$

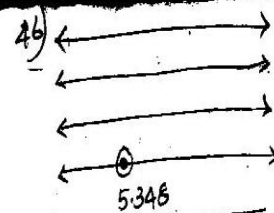
$$n(B) = 5$$

$$n(G) = 24 - 8 = 16$$

$$i) P(B) = \frac{n(B)}{n(s)} = \frac{5}{24}$$

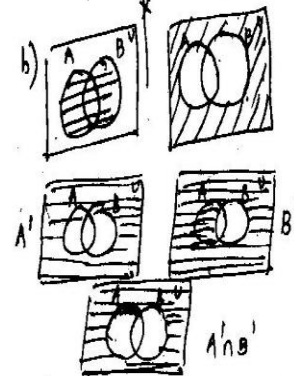
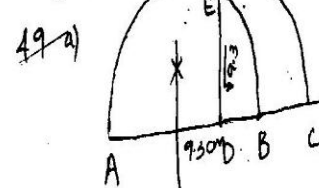
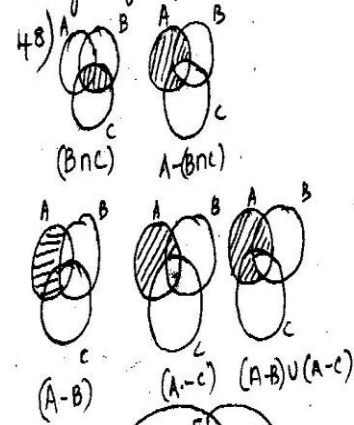
$$P(R) = \frac{n(R)}{n(s)} = \frac{3}{24} = \frac{1}{8}$$

$$P(G) = \frac{n(G)}{n(s)} = \frac{16}{24} = \frac{2}{3}$$



$$47) \frac{1}{13} = 0.076923$$

Length of the period = 6



$$P(A) = 4^2 - 2(4) - 8 = 16 - 8 - 8 = 16 - 16 = 0$$

$(x-u)$ is a factor of $P(x)$

$$37) 1001^3 = (1000+1)^3 = (1000+1)[(1000)^2 + (1000)(1) + 1^2] = 1001[1000000 + 1000 + 1] = 1001(1001001)$$

$$1001^3 = 10011011001$$