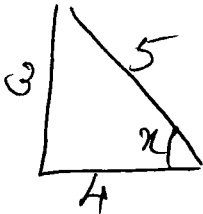


ANSWER KEY

First YEAR HIGHER SECONDARY <sup>Impvd</sup> EXAMINATION Oct ~~June~~ 2022

PART-I/II/III

SUBJECT: Mathematics (H.P.)CODE NO: FY: 875VERSION: A80 SCORES2.30 HOURS

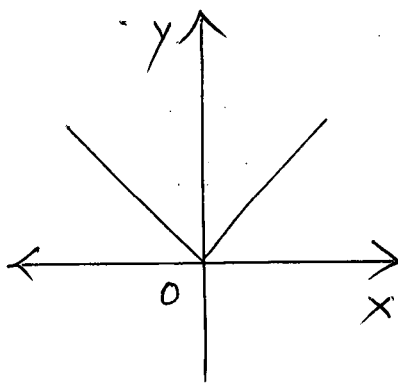
Qn. No	Sub Qns	Answer Key/Value Points	Score	Total Score
1	(a)	$A \cup B = \{1, 2, 3, 4\}$		2
	(b)	$A \cap B = \{2, 3\}$		1
2		$x + 1 = 3$ $x = 3 - 1 = 2$ $y - 2 = 1$ $y = 1 + 2 = 3$	1 1/2 1 1/2	3
3		$\sin x = \frac{3}{5}$ $\cos x = -\frac{4}{5}$ $\tan x = -\frac{3}{4}$	1 1 1	3
				
4	(a)	$\bar{z} = 4 - 3i^0$		1
	(b)	$ z  = \sqrt{4^2 + 3^2}$ $= \sqrt{25} = 5$	1 1	2

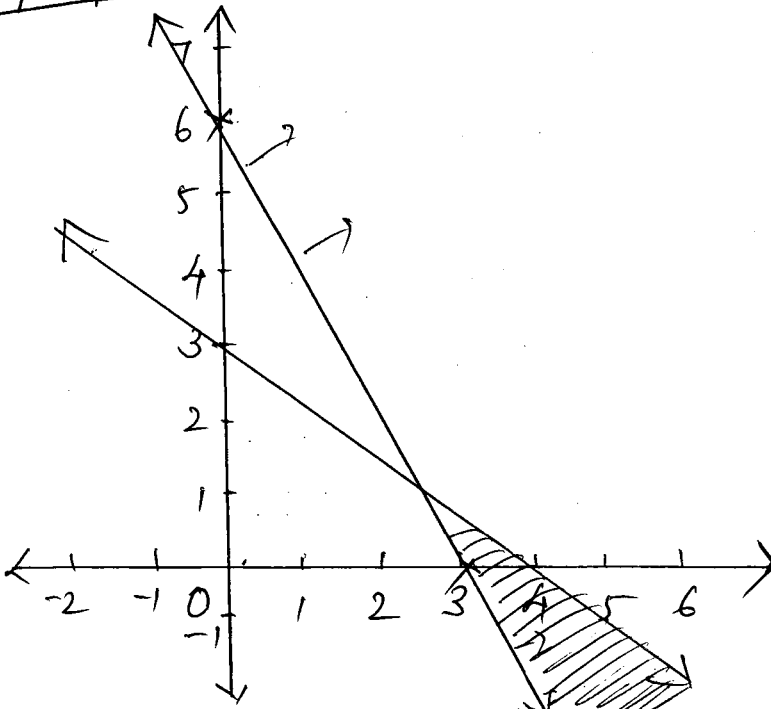
Qn. No	Sub Qns	Answer Key/Value Points	Score	Total Score
5		$7x + 3 < 5x + 9$ $7x - 5x < 9 - 3$ $2x < 6$ $x < 3$	1 1 1	3
6		$a_1 = 1(1+2) = 3$ $a_2 = 2(2+2) = 6$ $a_3 = 3(3+2) = 15$	1 1 1	3
7		$\text{slope, } m = \frac{y_2 - y_1}{x_2 - x_1}$ $= \frac{8 - 5}{3 - 2}$ $= 3$	1 1 1	3
8		$(x-h)^2 + (y-k)^2 = r^2$ $(x-0)^2 + (y-2)^2 = 2^2$ $x^2 + y^2 - 4y + 4 = 4$ $\therefore x^2 + y^2 - 4y = 0$	1 1 1	3
9		$\lim_{x \rightarrow 1} (x^2 + 3) = 1 + 3$ $= 4$	2 1	3

Qn. No	Sub Qns	Answer Key/Value Points	Score	Total Score
10	(a)	$A = \{2, 3, 5\}$		1
	(b)	$B = \{1, 3, 5\}$		2
11	(a)	$U = \{1, 2, 3, 4, 5, 6, 7, 8, 9\}$		2
	(b)	$A = \{1, 3, 5, 6\}$	1	
		$B = \{2, 3, 6, 7\}$	1	2
12	(a)	$A \times B = \{1, 2\} \times \{3, 4, 5\}$ $= \{(1, 3), (1, 4), (1, 5), (2, 3), (2, 4), (2, 5)\}$	1	
	b	$B \times A = \{3, 4, 5\} \times \{1, 2\}$ $= \{(3, 1), (3, 2), (4, 1), (4, 2), (5, 1), (5, 2)\}$	1	2
13	(a)	$P(1) : 1 = \frac{1(1+1)}{2} = 1$ $\therefore P(1) \text{ is true.}$	1	1
	(b)	$P(k) : 1 + 2 + 3 + \dots + k = \frac{k(k+1)}{2}$ $P(k+1) : 1 + 2 + 3 + \dots + (k+1)$ $= 1 + 2 + 3 + \dots + k + (k+1)$ $= \frac{k(k+1)}{2} + (k+1)$ $= (k+1) \left( \frac{k+2}{2} \right)$ $\therefore P(k+1) \text{ is true}$	1 $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$	3

Qn. No	Sub Qns	Answer Key/Value Points	Score	Total Score
14		$\frac{7!}{5! \times 2!} = \frac{7 \times 6 \times 5 \times \overset{0}{1}}{5! \times 2 \times 1}$ $= \frac{7 \times 6}{2}$ $= 21$	1 1 1 1	4
15		$(1+x)^4 = {}^4C_0 1^4 + {}^4C_1 1^3 x + {}^4C_2 1^2 x^2$ $+ {}^4C_3 1 \cdot x^3 + {}^4C_4 x^4$ $= 1 + 4x + 6x^2 + 4x^3 + x^4$	2 2	4
16	(a)	Common ratio, $r = 3$		2
	(b)	5 <sup>th</sup> term = $3^5$		2
17	(a)	(iv) $\frac{1}{2}$		1
	(b)	(iii) 0		1
	(c)	(i) 1		1
	(d)	(ii) $\sqrt{3}$		1

Qn. No	Sub Qns	Answer Key/Value Points	Score	Total Score
18	(a)	(A) (1, 2, 0)	1	1
	(b)	$\sqrt{(4-1)^2 + (5-2)^2 + (6-3)^2}$ $= \sqrt{3^2 + 3^2 + 3^2}$ $= \sqrt{27}$	1 1 1	3
19	(a)	It is false that $\sqrt{7}$ is rational		2
	(b)	If $x$ is odd, then $x$ is a prime number		2
20	(a)	(iii) 1		1
	(b)	(i) $2x$		1
	(c)	(iv) $-\frac{1}{x^2}$		1
	(d)	(ii) $\frac{1}{2\sqrt{x}}$		1
21		$\text{Mean}(\bar{x}) = \frac{\sum x_i}{n}$ $= \frac{6+7+10+12+13+4}{8}$ $= \frac{72}{8}$ $= 9$	1 2 1	4

Qn. No	Sub Qns	Answer Key/Value Points	Score	Total Score
22	(a)	$P(A') = 1 - P(A) = 1 - 0.4 = 0.6$		1
	(b)	$P(B') = 1 - P(B) = 1 - 0.5 = 0.5$		1
	(c)	$P(A \cup B) = P(A) + P(B) - P(A \cap B)$ $= 0.4 + 0.5 - 0.2$ $= 0.7$	1 1	2
23	(a)	$A' = \{2, 4, 6\}$		1
	(b)	$B' = \{1, 4, 6, 7\}$		1
	(c)	$A \cup B = \{1, 2, 3, 5, 7\}$	1	
		$(A \cup B)' = \{4, 6\}$	1	2
	(d)	$A' \cap B' = \{4, 6\}$ $\therefore (A \cup B)' = A' \cap B'$	1 1	2
24	(a)	$f(1) =  1  = 1$		1
	(b)	$f(-1) =  -1  = 1$		1
	(c)			4

Qn. No	Sub Qns	Answer Key/Value Points	Score	Total Score												
25	(a)	$z_1 + z_2 = (2 + 3i^0) + (1 + 2i^0)$ $= (2 + 1) + (3i^0 + 2i^0)$ $= 3 + 5i^0$	1 1 1	3												
	(b)	$z_1 - z_2 = (2 + 3i^0) - (1 + 2i^0)$ $= (2 - 1) + (3i^0 - 2i^0)$ $= 1 + i^0$	1 1 1	3												
26		$2x + y = 6$ <table border="1" data-bbox="363 1064 630 1205"> <tr><td>x</td><td>0</td><td>3</td></tr> <tr><td>y</td><td>6</td><td>0</td></tr> </table> $3x + 4y = 12$ <table border="1" data-bbox="359 1310 646 1467"> <tr><td>x</td><td>0</td><td>4</td></tr> <tr><td>y</td><td>3</td><td>0</td></tr> </table> 	x	0	3	y	6	0	x	0	4	y	3	0	1 1 4	6
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y	6	0														
x	0	4														
y	3	0														

Qn. No	Sub Qns	Answer Key/Value Points	Score	Total Score																
28	(a)	$y^2 = 8x$ $4a = 8$ $a = \frac{8}{4} = 2$ $\text{Focus} = (a, 0) = (2, 0)$	1 2	3																
29	(b)	<p data-bbox="359 705 1093 907">                     Panjang Latus rectum = <math>4a</math>  <math>= 4 \times 2</math>  <math>= 8</math> </p> <table border="1" data-bbox="327 907 774 1534"> <thead> <tr> <th><math>x_i</math></th> <th><math>x_i^2</math></th> </tr> </thead> <tbody> <tr><td>3</td><td>9</td></tr> <tr><td>6</td><td>36</td></tr> <tr><td>8</td><td>64</td></tr> <tr><td>9</td><td>81</td></tr> <tr><td>13</td><td>169</td></tr> <tr><td>14</td><td>196</td></tr> <tr><td>17</td><td>289</td></tr> </tbody> </table> <p data-bbox="327 1534 813 1624"> <math>\sum x_i = 70</math>   <math>\sum x_i^2 = 844</math> </p> <p data-bbox="343 1691 1141 1825">                     Mean (<math>\bar{x}</math>) = <math>\frac{\sum x_i}{n} = \frac{70}{7} = 10</math> </p> <p data-bbox="335 1848 1197 2161">                     Variance (<math>\sigma^2</math>) = <math>\frac{\sum x_i^2}{n} - (\bar{x})^2</math>  <math>= \frac{844}{7} - (10)^2</math>  <math>= 120.57 - 100 = 20.57</math> </p>	$x_i$	$x_i^2$	3	9	6	36	8	64	9	81	13	169	14	196	17	289	1 2 2 1 1	3 6
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