

X - MATHS
ANSWER KEY

I. CHOOSE

- 1) c) 3 3) c) 3 5) b) 5 7) a) 0
2) a) 7 4) c) 14280 6) d) $\frac{16}{5} \sqrt{\frac{x^2}{y}}$ 8) d) $(3-2)^2$

II

9) $R = \{(0,3), (1,4), (2,5), (3,6), (4,7), (5,8)\}$ -1m

Domain = $\{0, 1, 2, 3, 4, 5\}$ - $\frac{1}{2}$ m

Range = $\{3, 4, 5, 6, 7, 8\}$ - $\frac{1}{2}$ m

10) $\frac{1}{2} m a - b = 0$ $\frac{1}{2} m$
 $\frac{1}{2} m a + b = 2$ $\Rightarrow a = 1, b = 1$

11) $1230 - 12 = 1218$ } - $\frac{1}{2}$ m
 $1926 - 12 = 1914$ }
12) $a = 729$
 $r = \frac{243}{729} = \frac{1}{3}$

$1914 = 1218x + 696$
 $1218 = 696x + 522$
 $696 = 522x + 174$
 $522 = 174x + 0$

13) LCM = 48 min
 $t_7 = ar^6 = 1$ -1m

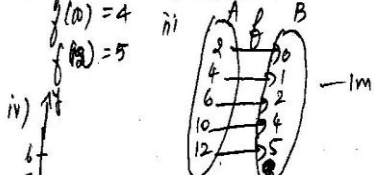
14) $\frac{x+2}{x+3} = \frac{x-1}{x-2}$
 $(x+2)(x-2) = (x-1)(x+3)$
 $= \frac{2x^2 + 2x - 7}{(x+3)(x-2)}$ -1m

15) $f(-2) = 3$
 $f(-1) = 1$
 $f(0) = 1$
 $f(1) = 3$
 $f(2) = 7$
B = $\{1, 3, 7\}$ -1m

b) $a = 8$ 1.

16) $f(2) = 0$ i) $f = \{(2,0), (4,1), (6,2), (10,4), (15,5)\}$

x	2	4	6	10	12
f(x)	0	1	2	4	5



17) $f \circ g = 5 - 4x - 1 \frac{1}{2} m$ $g \circ h = 1 - 6x - 1 \frac{1}{2} m$
 $(f \circ g) \circ h = 5 - 12x - 1 m$ $f \circ (g \circ h) = 5 - 12x - 1 m$

18) $S_1 = \frac{n}{2} [2a + (n-1)d]$
 $S_2 = \frac{2n}{2} [2a + (2n-1)d]$
 $S_3 = \frac{3n}{2} [2a + (3n-1)d]$ } -1m

$S_2 - S_1 = \frac{n}{2} [2a + (3n-1)d]$ -2m

$3(S_2 - S_1) = \frac{3n}{2} [2a + (3n-1)d]$ -1m

$d = -3 \frac{1}{4} \sqrt{\frac{1}{2} m}$
 $S_n = \frac{n}{2} [2a + (n-1)d]$ - $\frac{1}{2} m$

$S_{15} = \frac{15}{2} [2(6) + 14(-\frac{3}{4})]$ - $\frac{1}{6} m$

$S_{15} = \frac{165}{4} - \frac{1}{2} m$

21) $x^2 - 6x + 3$
 $x^4 - 12x^3 + 42x^2 - 36x + 9$
 $x^4 - 12x^3 + 42x^2 - 36x + 9$
 $6x^2 - 36x + 9$
 $6x^2 - 36x + 9$
0

$\sqrt{x^4 - 12x^3 + 42x^2 - 36x + 9} = |x^2 - 6x + 3|$ -1m

22) Area of 15 squares = $10^2 + 11^2 + \dots + 24^2$ -1m
 $= (1^2 + 2^2 + \dots + 24^2) - (1^2 + 2^2 + \dots + 9^2)$ -1m
 $= \frac{24 \times 25 \times 49}{6} - \frac{9 \times 10 \times 19}{6}$ -1m
 $= 4900 - 285$ -1m
 $= 4615$ -1m

$3(S_2 - S_1) = S_3$ -1m

19) $S_n = 3 + 33 + 333 + \dots + n \text{ terms}$
 $= 3(1 + 11 + 111 + \dots + n \text{ terms})$ -1m
 $= \frac{3}{9} (9 + 99 + 999 + \dots + n \text{ terms})$ -1m
 $= \frac{1}{3} [(10 \cdot 1) + (100 \cdot 1) + (1000 \cdot 1) + \dots + n \text{ terms}]$ -1m
 $= \frac{1}{3} [(10 + 100 + 1000 + \dots + n \text{ terms}) - (1 + 1 + \dots + 1 \text{ terms})]$ -1m

$S_n = \frac{1}{3} \left[\frac{10}{9} (10^n - 1) - n \right]$ -1m

20) $x^2 + 2$ $x^2 - 1$
 $x^2 + 3x^2 + 2x^2 - 3$ $x^2 + 2x^2 - 3$
 $x^4 + 3x^3 + 2x^2 - 3$ $x^3 + 2x^2 - 3$
 $2x^3 + 5x^2 - 4x - 3$ $-x^2 - 2x + 3$
 $2x^3 + 2x^2 - 10x + 6$ $-x^2 - 2x + 3$
 $3x^2 + 6x - 9$ $-2m$

$GCD = x^2 + 2x - 3$ -1m

22) Graph
Calculation: 3 Curve: 4
axis: 1 Solution: 1
Scale: 1