

MATHEMATICS FORM ONE MARKING SCHEME 2021

1.	a) $-2 > -3$ b) $-3 < 4$ c) $5 > -5$	B1 B1 B1	
		1	
2.	(a) $1573 = 11 \times 11 \times 13 = 11^2 \times 13$ (b) $1078 = 2 \times 7 \times 7 \times 11 = 2 \times 7^2 \times 11$	A1 A1	
		2	
3.	$240 = 2 \times 2 \times 2 \times 2 \times 3 \times 5 = 2^4 \times 3 \times 5$ $360 = 2 \times 2 \times 2 \times 3 \times 3 \times 5 = 2^3 \times 3^2 \times 5$ $600 = 2 \times 2 \times 2 \times 3 \times 5 \times 5 = 2^3 \times 3 \times 5^2$ $700 = 2 \times 2 \times 5 \times 5 \times 7 = 2^2 \times 5^2 \times 7$ $5 \times 2^2 = 20$	M1 A1	
		2	
4.	$27 = 3 \times 3 \times 3 = 3^3$ $30 = 2 \times 3 \times 5 = 2 \times 3 \times 5$ $45 = 3 \times 3 \times 5 = 3^2 \times 5$ $\text{L.C.M} = 3^2 \times 2 \times 5$ $= 270 + 3 = 273$	M1 B1 A1	
		3	
5	$-7 - (-8) = 1$	M1 A1	
		2	
6	(a) $(4 \times 4) + (2x - 2)$ $16 - 12 + 2 = 6$	M1A1	

	$(b) \frac{4xy}{z} = \frac{4x-2x-6}{4} = \frac{48}{4}$ $= 12$	M1A1	
	$c) 2y - 3x + z$ $= (2x - 6) - (3x - 2) + 4$ $- 12 + 6 + 4 = 2$	M1A1	
		6	
7	<p>BODMAS</p> $96 \div 6 = 16 \times 7 \times 15 - 14 \times 5$ $16 + 105 - 70$ $= 51$	MI A1	
		2	
8	<p>L.C.M = 110 or %</p> $\frac{2}{5} \times 110, \frac{3}{10} \times 110, \frac{6}{5} \times 110, \frac{5}{11} \times 110$ $= 44, 33, 132, 50$ <p><i>descending order</i></p> $\frac{6}{5} \quad \frac{5}{11} \quad \frac{2}{5} \quad \frac{3}{10}$	M1 A1	
		2	
9	$(a) \frac{23}{3} + \frac{33}{5} + \frac{71}{6}$ $= \frac{230+198+355}{30} = \frac{783}{30}$ $= 26 \frac{1}{10} \text{ or } 26.1$ $(b) = \frac{-2}{3} - \frac{1}{10} - \frac{1}{7}$ $= \frac{-140-21-30}{210} = \frac{-191}{210}$	M1A1 M1A1	
		4	
10	(a)		

	$\frac{45}{60} \div \left(5\frac{1}{12} - 4\frac{1}{5} \right)$ $\frac{61}{12} - \frac{21}{5}$ $= \frac{305-252}{60} = \frac{53}{60}$ $\frac{45}{60} \times \frac{60}{53} = \frac{53}{60}$ <p>(b) $\frac{3}{8}$ of $\left(7\frac{3}{5} - \frac{1}{3} \left(1\frac{1}{4} + 3\frac{1}{3} \right) + 2\frac{2}{5} \right)$</p> $\frac{5}{4} + \frac{10}{5}$ $\frac{15+40}{12} = \frac{55}{12}$ $= \frac{1}{3} \times \frac{55}{12} = \frac{55}{36}$ $\frac{38}{5} - \frac{55}{36} + \frac{2}{5} = \frac{1368-275+432}{180} = \frac{1525}{180}$ $\frac{3}{8} \times \frac{1525}{180} = 3\frac{17}{96}$	<p>A1</p> <p>A1</p> <p>M1</p> <p>M1</p> <p>M1</p> <p>A1</p>	
		6	
11.	<p>(a) $0.04 = \frac{1}{25}$</p> <p>(b) $0.6\dot{7}$ let $r = 0.677777$ $- 10r = 6.777777$ $100r = 67.77777$ $90r = 61$ $= r = \frac{61}{90}$</p> <p>(c) let $r = 3.256565656$ $- 10r = 32.56565656$ $1000r = 3256.565656$ $\frac{990r}{990} = \frac{3224}{990}$ $r = 3\frac{127}{495}$</p>	<p>A1</p> <p>M1</p> <p>A1</p> <p>Mi</p> <p>M1</p> <p>A1</p>	

		6	
12	$(13.42 + 0.321) - (0.31 \times 2.56)$ $13.741 - 0.7936$ $= 12.95$	M1 M1 A1	
		3	
13.	<p>(a) $509.78 = 509.8$</p> <p>(b) $0.0289 = 0.03$</p>	A1 A1	
		2	
14	$\frac{1}{3}(a + b) + \frac{1}{5}(a - b)$ $\frac{1}{3}a + \frac{1}{3}b + \frac{1}{5}a - \frac{1}{5}b$ $\frac{5a+5b+3a-3b}{15}$ $= \frac{8a-2b}{15}$	M1 M1 A1	
		3	
15	$\frac{1\frac{1}{2} + \frac{3}{5} \div \frac{5}{6} \text{ of } 2\frac{2}{5}}{1\frac{7}{10}}$ $\frac{5}{6} \times \frac{2}{5} = 2$ $\frac{3}{5} \times \frac{1}{2} = \frac{3}{10}$ $\frac{5}{2} + \frac{3}{10} = \frac{25+3}{10} = \frac{28}{10}$ $\frac{28}{10} \times \frac{10}{17} = \frac{28}{17} = 1\frac{11}{17}$	M1 M1 A1	
		3	
16.	36, 192, 120, 744, and 9564		
17	<p>(a) $240 = 2 \times 2 \times 2 \times 2 \times 3 \times 5 = 2^4 \times 3 \times 5$</p> <p>$360 = 2 \times 2 \times 2 \times 3 \times 3 \times 5 = 2^3 \times 3^2 \times 5$</p>	M1 M1	

	$600 = 2 \times 2 \times 2 \times 3 \times 5 \times 5 = 2^2 \times 3 \times 5^2$ $700 = 2 \times 2 \times 5 \times 5 \times 7 = 2^2 \times 5^2 \times 7$ $LCM = 2^4 \times 3^2 \times 5^2 \times 7 = 25,200$ (b) $240 = 2^4 \times 3 \times 5$ $360 = 2^3 \times 3^2 \times 5$ $600 = 2^3 \times 3 \times 5^2$ $700 = 2^2 \times 5^2 \times 7$ $G.C.D = 2^2 \times 5 = 20$ C) $L.C.M + 17$ $= 25200 + 17$ $= 25,217 \text{ Liters}$ (d) Twenty-five thousand, two hundred and seventeen	A1 M1 M1 A1 M1 A1 M1A1	
		10	
18	(a) $30816 \div 24 = 1284 \text{ crates}$ (b) $1284 \times 2 = 2568 \text{ kg}$ c) $12 - 2 = 10 \text{ kg}$ $10 \times 1284 = 12840 \text{ kg}$ $(12 \times 1284) - (2 \times 1284)$ $= 15408 - 2568$ $= 12840 \text{ kg}$ d) Number of trips $= \frac{1284 \text{ crates}}{107 \text{ crates}} = 12 \text{ trips}$ cost per trips $= sh. 5 \times 107 = sh. 535$ $Total \text{ cost} = 535 \times 12 \text{ trips}$ $= sh. 6420$	M1A1 M1A1 M1 M1 A1 M1 M1 A1	

19	<p>a) Let his salary be sh. X</p> <p>School fees $\frac{1}{4}X$</p> <p>Remaining $\frac{3}{4}X$</p> <p>Electricity and water bills $\frac{1}{4}X \times \frac{3}{4}X$</p> <p style="padding-left: 100px;">$= \frac{3}{16}X$</p> <p>Remaining $\frac{3}{4}X - \frac{3}{16}X$</p> <p style="padding-left: 100px;">$= \frac{9}{16}X$</p> <p>Transport $\frac{1}{9} \times \frac{9}{16}X$</p> <p>$= \frac{1}{16}X$</p> <p>Remaining $= \frac{9}{16}X - \frac{1}{16}X$</p> <p style="padding-left: 100px;">$= \frac{8}{16}X = \frac{1}{2}X$</p> <p>$\frac{1}{2}X = 3,400$</p> <p>$X = 3,400 \times 2$</p> <p style="padding-left: 100px;">$= 6,800$</p>	M 1 M 1 M 1 M 1	
	<p>b) School fees $= \frac{1}{4} \times 6,800$</p> <p style="padding-left: 100px;">$= \text{sh. } 1,700$</p>	A ₁	
	<p>c) Transport $= \frac{1}{16}X \times$</p> <p style="padding-left: 100px;">$\frac{1}{16} \times 6,800$</p> <p>Sh. 425</p>	A ₂	
	<p>d) Electricity and water bills</p> <p style="padding-left: 100px;">$\frac{3}{16}X = \frac{3}{16} \times 6,800$</p> <p>Sh. 1,275</p>	A ₂	
20	<p>Use tables to find the squares of;</p> <p>(a) 1.28 = 1.638</p> <p>(b) 223.4 = 49910</p> <p>(c) Find the square root of 1225 using factorization method</p>		

	5×245 $5 \times 5 \times 49$ $5 \times 5 \times 7 \times 7$ $5^2 \times 7^2$ $\sqrt{5^2 \times 7^2}$ $5 \times 7 = 35$ (d) Find the square root of 0.0168 square root tables 0.1296		
21	(a) k =70 h =70 g =44 (b) a. 62 = 6.2×10^1 b. 4269 = 4.269×10^3 c. 0.354 = 3.54×10^{-1} d. 0.0000999 = 9.99×10^{-5} e. 5 = 5.0×10^0 (c) Write forty-eight thousandths in figures 0.048		

