SUNRISE MATHEMATICS MARKING SCHEME 2021

|  |  |  |
| --- | --- | --- |
|  | 2 + $\frac{40}{60}$ = 2 $\frac{2}{3}$ hours  2$\frac{2 }{3}$ x 120 = 320 km$\frac{320}{4}$ = 80 litres 80x59 = 4720 sh. | B1M1A1 |
|  |  | 03 |
|  |  | M1M1A1  |
|  |  | 03 |
|  | a)b)  | B1 B1 B1B1 |
|  |  | 04 |
|  | 2x – 2 $\leq 3x+1$-2 – 1 $\leq 3x-2x$-3 $\leq x$ B1 for -3$\leq x$3x + 1 < x + 112x < 10X<5 B1 for x < 5-3 $\leq x<5$Integral values -3,-2, -1, 0, 1,2,3,4 B1 – All correct integral values | B1B1B1 |
|  |  | 03 |
|  |  |  |
|  | $√\frac{1408X594X12}{605X125X100}$ √$\frac{128X54X12}{5X125X100}$√[$\frac{128X9X2X3X3X2}{100X625}$]=$\frac{72}{625}$ | M1M1A1 |
|  |  | 03 |
|  |  ASF =$ \frac{48}{108} $=$ \frac{4}{9}$LSF = √ $\frac{4}{9} $=$ \frac{2}{3}$VSF= ($ \frac{2}{3} $)3 = 8/27Vol=$\frac{8}{27}$ x162 =48cm3 | M1M1A1 |
|  |  | 03 |
|  |  0.5 x14x8 sin θ=28m2  Sin θ=0.5 θ=Sin-1 (0.5) Ө =30°  | M1A1 |
|  |  | 02 |
|  | Tuesday-Thursday=24x3=72hoursMonday=2400-0445=19hours 15minutesFriday=18hours 45minutesTotal time=72+19.25+18.75=110hoursTime lost=0.5x110=55minutes1845hrs-55minutes=1750hours=5.50pm | B1M1A1 |
|  |  | 03 |
|  | N=9t2-25a2=(3t-5a)(3t+5a)D=6t2+19at+15a2=6t2+9at+10at+15a2=3t(2t+3a)+5a(2t+3a)=(3t+5a)(2t+3a)N=(3t-5a)(3t+5a)D ( 3t+5a)(2t+3a)=3t-5a 2t+3a | M1M1A1 |
|  |  | 03 |
|  |  | M1M1A1 |
|  |  | 03 |
|  (a) (b) | 11944 Sterling pounds | M1A1M1A1 |
|  |  | 04 |
|  | Selling price =$ \frac{100}{125}$x 8000=sh6400 | M1M1A1 |
|  |  | 03 |
|  |

|  |  |
| --- | --- |
| *Log* | *No* |
|  *1.5649* | *36.72**(0.46)22**3.474 x 10-1**= 0.3474* |

 |  |
|  |  | 04 |
|  | Let the no. be$ xy$ | M1M1A1 |
|  |  | 03 |
|  | math pp1ms q16 | M1M1A1 |
|  |  | 03 |
|  | Sin 4y = Cos 2y 4y0 + 2y0 = 900  6y0 = 900 |  |
|  |  | 02 |
|  (a) (b) (c) | Surface area of hemisphere=2π r2S.A= 2xπ x1.5214.14cm2Surface area of cylindrical part2π rhS.A=2xπ xrxh2$2πx1.5x6.5=61.29cm2$T.S.A=14.14+61.29 =75.43cm2Volume of hemispherical part=2/3 πr3 =2/3xπx1.53 =7.071cm3Volume of cylindrical part=πr 2 h =πx1.52 x6.5 =45.96cm3 T. volume=7.069+45.96 =53.04cm3Density=M/v =10/53.04 =0.1886g/cm3 | M1M1M1A1M1A1M1A1M1A1 |
|  |  | 10 |
| (a) (i)(ii)(iii)(b)(C)(d) | **AB = b** - **a****OC** = $ \frac{1}{4}a+\frac{3}{4}b$ **BD =** $\frac{1}{2}$ **a - b****OX**=**b**(1-h)+$\frac{1}{2}ah$**OX**=**b**(1-h)+$\frac{1}{2}ah$**OX**=$\frac{1}{4}ak$+$\frac{3}{4}bk$$\frac{1}{2}$**a**h =$\frac{1}{4}ak$2 h = k$\frac{3}{4 }$**b** k=**b** (1-h)$\frac{3}{4 }$k=1 - h$\frac{3 }{4}$(2 h)=1 - h$\frac{5}{2 }$h =1 ═> h =$ \frac{2}{5}$K=2($ \frac{2}{5} $) =$ \frac{4}{5}$K =$ \frac{4}{5}$$\frac{1 }{5}$***a***+$ \frac{3 }{5}b$ | A1A2A1A1M1M1M1A1A1 |
|  |  | 10 |
| (a) (b)(c) (d)(e) |  $$\frac{y-5}{x}=-\frac{3}{8}$$ | M1A1A1M1A1M1M1A1M1A1 |
|  |  | B1M1M1M1M1M1M1M1 A1 |
|  |  | 10 |
|  | Total ratio = 8+14+3=25Material LabourTransport2004Material Labours Transport Total in  = Sh 1890In 2005 increased to 1981due to labour only | B1B1B1M1M1A1M1M1M1A1 |
|  |  | 10 |
|  | (a) a = $\frac{v-u}{t}$2.75 =$\frac{22-0}{t}$ t=$\frac{22}{2.75}$ = 8 sec (b) Distance = ½ x 8 x 22 = 88m (c) 847 = ½ ( 40+t) + 32) x 22 847 = ½ (72 +t) x 221694 = (72+t) 22$\frac{1694}{22}$ = 72 + t$$77=72+t$$T = 5 sec T = 40 +t = 40+5 = 45 sec. (d) a = $\frac{v-u}{t}$ = $\frac{0-22}{5}$  = -4.4m/s2  | M1 M1 A1 M1 A1  M1 M1 A1M1A1 |
|  |  | 10 |
|  | C:\Users\seceretaly\Documents\Scanned Documents\Image (25).jpgA’(0,10)B’(2,6) 3C’(2,10)A”(10,2)B”(6,2) 3C”(10,2) ABC =2 | A1A1 |
|  |  |  |
|  | (a) C:\Users\Nzambia\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Word\73.jpg CF 2  9  12 16 22 25(b) Median = L + $\left(\frac{\frac{N}{2}-C}{f}\right)$i = 43.5 + $\left(\frac{12.5-12}{4}\right)$8  = 43.5 + $\left(\frac{1}{4}x 8\right)$ = 43.5 + 1C:\Users\Nzambia\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Word\74.jpg *= 44.5* |  |