|  |  |  |  |
| --- | --- | --- | --- |
| 1 | $$\frac{25}{12}$$− $\frac{3}{4}$-2$\frac{7}{9}$ | M1M1A1**3** | NumeratorDenominator |
| 2 | 1. M=-2
2. tan-1 (2)

=63.43o | B1M1A1**3** |  |
| 3 | EB=x cm 5=$\frac{12-x}{x}$X=2EC=10cm | M1A1B1**3** |  |
| 4 | 12c+8t=9408c+10t=860T=sh 50C=sh 456(45)+12 (50)=sh 870 | M1A1B1**3** | For both equationFor both |
| 5 | 3-3mx 3-4= 310-3m-4=10$$M=-4\frac{2}{3}$$ | M1M1A1**3** | Expressing all to base 3 |
| 6 | $$\frac{500,000x84}{100}=ksh 420,000$$$$\frac{95}{100}×420,000=399,000$$¼$×399,000=99,750$$$\frac{99,750}{88.7}$$=1124.58 dollars=1125 dollars | M1M1M1A1**4** |  |
| 7 | 1. Sin-1$\left(\frac{365×2}{25×32}\right)$

= 65.85o180-65.85=114.15o1. a2=252+322-2x25x32x cos114.15o

=625+1024-(1600(-0.4.91)a=$\sqrt{2303.56}$=47.995=48cm | M1A1M1A1**4** | Application of cosine rule |
| 8 | LCM=122+1=13 staircases  | B1B1**2** |  |
| 9 | $$\frac{8+x^{2}-6x}{2x}$$$$\frac{x^{2}-2x-8}{6x}$$$$\frac{3(x^{2}-6x+8)}{x^{2}-2x-8}$$$$\frac{3\left(x-2\right)\left(x-4\right)}{\left(x-2\right)\left(x-4\right)} $$$$=\frac{3(x-2)}{x+2}$$ | M1M1M1A1**4** | Simplified numerator and denominator (both)Factorization of both |
| 10 |  (2, -3) 4 B(-10, 9) p A$$\frac{5}{4}\left(\begin{array}{c}-10\\9\end{array}\right)+\frac{-1}{4}\left(\begin{array}{c}2\\-3\end{array}\right)$$$\left(\begin{array}{c}\frac{-50}{4}\\\frac{45}{4}\end{array}\right)$+$\left(\begin{array}{c}\frac{-2}{4}\\\frac{3}{4}\end{array}\right)$=$\left(\begin{array}{c}-13\\ 12\end{array}\right)$$$\vec{OP}=(-13, 12)$$ | M1M1A1**3** |  |
| 11 | $$\frac{\left[4\left(3\right)\left(-3\right)\left(-1\right)\right]-\left[2\left(3\right)+1)^{2}\right]-5\left(-3\right)}{\begin{array}{c}3(-3)^{3}\left(-1\right)+[3(3)(-1)^{3}+4\left(-3\right)]\\\frac{\begin{array}{c}24-6+10\end{array}}{\begin{array}{c}81-9-12\\\frac{45}{60}=\frac{3}{4}\end{array}}\end{array}}$$ | M1M1A1**3** | * substitution
 |
| 12 | (7-2)180o=900o40+2x+x+2x+25+155+140=900o360+5x=9005x=540X=108o | B1M1A1**3** |  |
| 13 | $$\frac{22}{7}×35^{2}h=10,000$$h=2.597cm$$\frac{20}{2.597}$$=7.701 hrs | M1M1A1**3** | $\frac{22}{7}×\frac{35×35×20}{1000}$=77 litres$$=7^{\frac{7}{10}hrs=7 hrs 42 mins}$$ |
| 14 | 1 h= 60kmRelative speed=x-60km/h$$\frac{60}{x-60}=3hrs$$x-60=20x=80km/h | B1M1A1**3** |  |
| 15 | A: J: M=2:6:9$$\frac{6}{17}×32,640$$=sh. 11,520A5B5D5A6VC56B6A5 | B1M1A1**3** | * Ratio of the three
 |
| 16 |  | B1B1B1**3** | * Net drawn accurately
* Labeling
* Path shown
 |
| 17 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| marks | 30-34 | 50-59 | 60-79 | 80-89 |
| F | 2 | 10 | 40 | 5 |

b) x=32 42 54.5 69.5 84.5 fx=64 126 545 2780 422.5$$\overbar{x}=\frac{3937.5}{60}$$=65.6251. CF =2 5 15 55 60

59.5+$\frac{30-15}{40}×20$=67 | B1B2M1M1M1A1B1M1A1**10** | * Classes
* All frequencies
* B1 at least 3 frequencies
* Mid points
* fx

Cumulative frequenciesOr equivalent |
| 18 | 1. $\frac{5}{x}$
2. $\frac{7}{x+24}$
3. $\frac{5}{x}-\frac{3}{5}=\frac{7}{x+24}$

3x2+82x-600=0(x-6)(3x+100)=0X=61. Time to walk

=$\frac{5}{6}×60=50 minutes$1. $\frac{5}{60}×30=2\frac{1}{2} km$

$$7-2^{\frac{1}{2}}=4^{\frac{1}{2}}$$$$\frac{9}{2}×\frac{1}{6}=\frac{3}{4}hrs$$ | B1B1M1M1M1A1B1M1M1A1**10** |  |
| 19 | 1. V=$\frac{KH}{R^{2}}$

18.5=$\frac{kx8}{16}$K=37V=$\frac{37H}{R^{2}}$1. $\frac{37X12}{25}$

=17.761. R1=1.15R

H1=0.88HV1=$\frac{k 0.88H}{(1.15R)^{2}}$V1=0.665v x 100%=66.5%Decreased by 33.5% | M1A1B1M1A1B1M1M1M1A1**10** | For both R1 and H1Difference |
| 20 | 1. Quadrilateral drawn

C:\Documents and Settings\DIRECTOR OF STUDIES\Desktop\New Folder\img011.jpg1. Centre (-1, 2)

Angle +90o1. B`(0,6)

C`(-2,6)1. B``(-1, -3)

C``(-3,-3) | B1 B1B1B1B1B1B1B1B1B1**10** | * ABCD
* Bisector
* Centre
* Angle
* Point B`
* Point C`
* Quadrilateral A`B`C`D` drawn
* Reflection in line y=-x
* B`` coordinates
* C`` coordinates
 |
| 21 | 1. $\sqrt{10^{2}+10^{2}}$

$$=14.14cm$$1. Sin 36o=$\frac{7.07}{r}$

R=$\frac{7.07}{sin36}$=12Cm1. ($\frac{72}{360}×\frac{22}{7}×12^{2}-\frac{1}{2}×12^{2}\sin(72)$)+($\frac{90}{360}×\frac{22}{7}×10^{2}-\frac{1}{2}×10^{2}sin90^{o}$)

(90.51-68.48)+(78.57-50)22.08+28.57=50.6cm2 | M1A1M1A1M1M1M1M1M1A1**10** |  |
| 22 | 1. V=$\frac{4}{3}×\frac{22}{7}×5^{3}=523.81cm^{3}$

M=523.81 x 2.4=1257.144g=1.257kg1. $\frac{22}{7}×8×8×h=523.81$

h=$\frac{523.81×7}{22×64}$=2.6041. $\frac{22}{7}×5×5×h=523.81$

$$h=\frac{523.81×7}{22×25}$$=6.667cm | M1A1M1A1M1M1A1M1M1A1**10** |  |
| 23 | ANDNB4cmN6cmCN5cmb)i 7.6 x 10=76$\pm 1$ 325o ii) 4.6 x 10=46$\pm 1$ 200oiii) 9.8 x 10= 98$\pm 1$ 296o | B1B1B1B1B1B1B1B1B1B1**10** | * Location of A
* Location of C
* Location of D
* Diagram
 |
| 24 | 1. 75x + 60y=70(x+y)

5x=10yX:y=2:11. i) $\frac{1}{5}+\frac{1}{10}=\frac{3}{10}$

Time till=$\frac{10}{3}=3\frac{1}{3}hrs$ii) 1 hr $=\frac{1}{5}+\frac{1}{10}$ - $\frac{1}{6}$= $\frac{2}{15}$ full$$\frac{1}{5}-\frac{1}{6}=\frac{1}{30}$$rem= $\frac{13}{15}$$$\frac{13}{15}×30=26hrs$$iii) empty =$\frac{3}{4}$$$\frac{3}{4}×\frac{15}{2}=5\frac{5}{8}hrs$$ | M1M1A1M1A1M1M1A1M1A1**10** | Or equivalent |