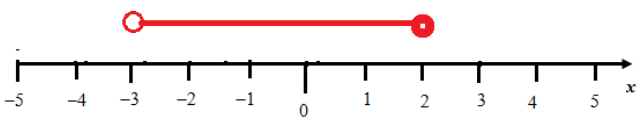
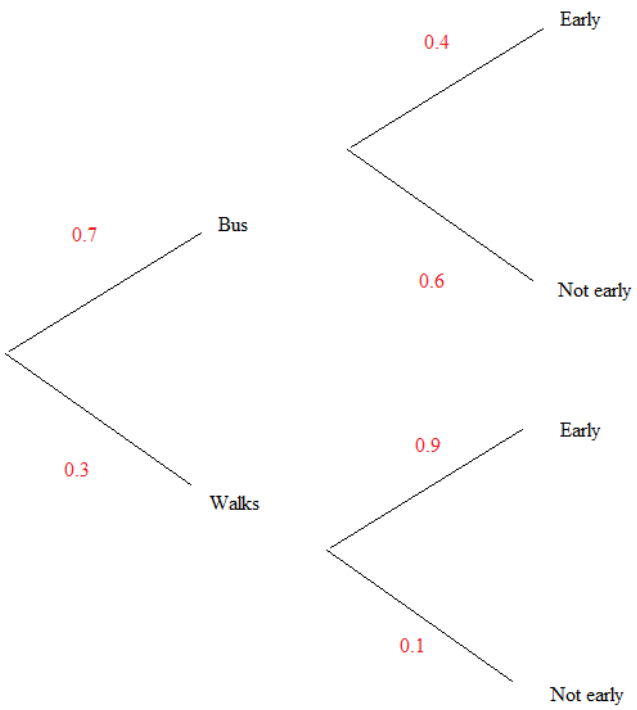
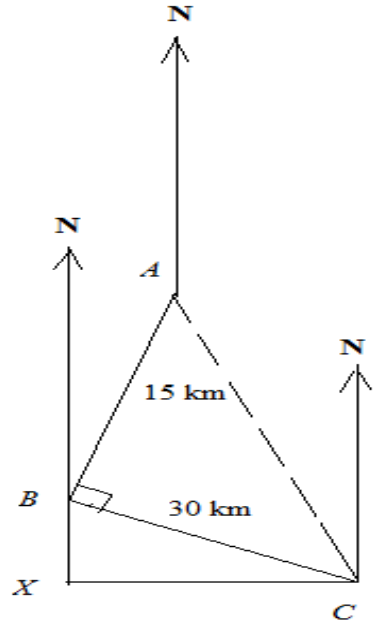
Question	Scheme	Mark	Notes
20 (a)	$1-\frac{4}{t^2}$ (one term correct)	3	M1
	$"1-\frac{4}{t^2}"=0$ (equating their f(t) to 0)		M1 (DEP)
	$t=+2$ (cao)		A1
	$\left("2"+\frac{4}{"2"}\right)-\left(8+\frac{4}{8}\right)$ (oe)	2	M1
	4.5 (metres)		A1
21 (a)	$x+y=550$	1	B1
(b)	$22x+12(y-50)+(12-5)\times 50=8600$ (oe)	1	B1
(c)	$"22x+12"(550-x-50)"+(12-5)\times 50=8600"$ (oe but complete method to solve SEs for x and y with no errors)	3	M1
	NB: c's SEs in (a) and (b) must be linear SEs in x and y with (a) having unit coefs.		A1
	$x=225$		A1
	$y=325$		
22 (a)	$-12<4x$ OR $3x\leq 6$ (oe)	3	M1
	$-3<x$		A1
	$x\leq 2$		A1
	NB: $-3<x\leq 2$ scores A2		
(b)		2	B1 ft
	Open circle at "x=−3" and closed circle at "x=2"		B1 ft
	One single line joining the two circles		

Question	Scheme	Mark	Notes
23 (a)	One term correct $9x^2 - 30x$	2	M1 A1
(b)	$"9x^2 - 30x" = -25$ $9x^2 - 30x + 25 (= 0)$ $(3x - 5)^2$ (Attempt to factorise c's quadratic) $x = \frac{5}{3}$ OR $1\frac{2}{3}$ OR 1.67	4	M1 A1 M1 A1
24 (a)	$\frac{6}{\sin \angle ABC} = \frac{10}{\sin 50}$ oe $\angle ABC = \sin^{-1}\left(\frac{6 \times \sin 50}{10}\right)$ $\angle ABC = 27.363 \rightarrow \mathbf{27.4}$ awrt	3	M1 M1 (DEP) A1
(b)	$\frac{AB}{\sin(180 - (50 + "\angle ABC"))} = \frac{10}{\sin 50}$ $AB = \frac{10 \times \sin(180 - (50 + "\angle ABC"))}{\sin 50}$ **(OR** $AB^2 = 6^2 + 10^2 - 2 \times 6 \times 10 \times \cos(180 - (50 + "\angle ABC"))$ $AB = \sqrt{((6^2 + 10^2) - (2 \times 6 \times 10 \times \cos(180 - (50 + "\angle ABC"))))}$ **)** $AB = 12.74 \rightarrow \mathbf{12.7}$ (cm) awrt	3	M1 M1 (DEP) (M1) (M1 (DEP))

Question	Scheme	Mark	Notes
25 (a)	$\frac{1}{24}+\frac{1}{48}+\frac{1}{24x}$ of the tank filled in 1 hour, so $\frac{1}{24}+\frac{1}{48}+\frac{1}{24x}$ (oe) **seen** $\frac{3x+2}{48x}$ or $\frac{1}{16}+\frac{1}{24x}$ (isw after correct answer seen)	2	M1 A1
(b)	) ∴ The 3 taps fill $"\frac{3x+2}{48x}"\times 15$ **OR** $\left(\frac{1}{16}+\frac{1}{24x}\right)\times 15$ tanks of water in 15 hours So to fill in tank we must have $"\frac{3x+2}{2x}\times\frac{15}{24}"=1$ (tank) $45x+30=48x$ (removing denominators) $\left(\text{OR } \frac{1}{16}+\frac{1}{24x}=\frac{1}{15}\right.$ (M1(DEP)) $24x=240$ $\left.\text{(M1(DEP))}\right)$ $x=10$	4	M1 M1 (DEP) M1 (DEP) A1

Question	Scheme	Mark	Notes
26 (a)	 Probability pairs (0.3, 0.7), (0.9, 0.1), (0.4, 0.6)	2	B2 (–1 each incorrect pair)
(b)	"0.3×0.1" 0.03, 3%	2	M1 A1
(c)	"0.3×0.9" OR "0.7×0.4" "$0.3\times0.9+0.7\times0.4$" $\frac{11}{20}$, 0.55, 55%	3	M1 M1 (DEP) A1

Question	Scheme	Mark	Notes
27 (a)	 $\angle ABC = 90^o$ $AC = \sqrt{30^2 + 15^2}$ AC= 33.54 →awrt **33.5** (km)	3	M1 M1 (DEP) A1
(b)	Point X is st BX is perpendicular to CX (see diagram) $\angle BCX = 20^o$ $\tan \angle BCA = \frac{15}{30}$ $\left(\angle BCA = 26.565^o\right)$ Bearing of A from $C = 270 + ("\angle BCA" + 20)$ **(OR** $\tan \angle BAC = \frac{30}{15}$ $\left(\angle BAC = 63.435^o\right)$ ∴ bearing of C from A is $200 - "63.435"$ $\left(= 136.565^o\right)$ ∴ bearing of A from C is $360 - (180 - "136.565")$ (oe) **)** 316.565→ awrt **317**	4	M1 M1 M1 (DEP) (M1) (M1) (DEP) (M1) (DEP)