Qns	Solutions (2Exp P2)	Marks
1	$2(3x^2-x+5)-3(3x-2)=6x^2-2x+10-9x+6$ $-6x^2-11x+16$	M1 A1
2a	$\frac{9x^2}{2y^2}\div\frac{3x^3y}{8}=\frac{9x^2}{2y^2}\times\frac{8}{3x^3y}$ $-\frac{72x^2}{6x^3y^3}$ $=\frac{12}{xy^3}$	M1 for flipping fraction A1
2bi	$w^2-w-6=(w-3)(w+2)$	B1
2bii	$\frac{5}{w^2-w-6}+\frac{1}{2w-6}=\frac{5}{(w-3)(w+2)}+\frac{1}{2(w-3)}$ $=\frac{5(2)+(w+2)}{2(w-3)(w+2)}$ $=\frac{10+w+2}{2(w-3)(w+2)}$ $=\frac{12+w}{2(w-3)(w+2)}$	M1 for common denominator A1
3	$2E=mv^2$ $v^2=\frac{2E}{m}$ $v=\pm\sqrt{\frac{2E}{m}}$	M1 for finding v^2 A1 (must include ±)
4a	4	B1
4b	105	B1
5	$XZ^2=37^2$ $=1369$ XY^2+XZ^2 $=35^2+14^2$ $=1421$ Since $XY^2+YZ^2\neq XZ^2$, then by the converse of Pythagoras' Theorem, triangle XYZ is not a right-angled triangle.	M1 A1

Qns	Solutions (2Exp P2)	Marks
6ai	$\sin\angle QAB=\frac{48}{60}$ $=\frac{4}{5}$	B1
6aii	$\cos\angle PBA=\frac{24}{60}$ $=\frac{2}{5}$	B1
6bi	$\angle CAB=\sin^{-1}\left(\frac{4}{5}\right)=53.1301...$ $\angle CBA=\cos^{-1}\left(\frac{2}{5}\right)=66.4218...$ $\angle PCQ=180-their\ 53.1301-their\ 66.4218$ $=60.44807612$ $=60.4\ (shown)$	M1 for each angle found A1
6bii	$\tan\angle QCB=\frac{48}{QC}$ $QC=\frac{48}{\tan 60.44807612}$ $=27.2145..$ $AC=27.2145+36$ $=63.2$	M1 for QC (no ECF) A1
7a	60	B1
7b	70	B1
7c	5	B1
7d	$=\frac{19}{25}\times 100\%$ Percentage pass $=76\%$ I disagree as there are 76% passes.	M1 A1 for conclusion
8a	$height=\sqrt{15.5^2-5^2}$ $=\sqrt{215.25}$ $=14.67140075$ $=14.671(shown)$	M1 A1 (must see 14.6714 first)
8b	$vol=\frac{1}{3}\times(8)(10)\times 14.67140075$ $=391cm^3$	M1 A1

Qns	Solutions (2Exp P2)	Marks
9ai	$\frac{1}{2}$	B1
9aii	$\frac{2}{3}$	B1
9b	$\frac{x+4}{x+24}-\frac{1}{3}$ $3x+12=x+24$ $2x=12$ $x=6$	B1
10	$SA-\pi rl+2\pi r^2$ $=\pi(8)(17)+2\pi(8)^2$ $=136\pi+128\pi$ $=829.380$ $=829cm^2 \quad (3sf)$	M1 for $\pi(8)(17)$ M1 for $2\pi(8)^2$ A1
11a	6	B1
11b	18	B1
11c	Smooth curve through 7 correct points. Refer to attached.	B2FT for 7 points plotted **correctly and smoothly** B1FT for 6 or 7 points plotted correctly
11di	13 (±0.1)	B1
11dii	4.35 (±0.05)	B1
11e	The maximum height of the ball is **22m** above ground. Hence, the ball would not hit the wire.	B1
12a	$\frac{30}{x}$	B1
12b	$\frac{30}{x+5}$	B1
12c	$\frac{30}{x}-\frac{30}{x+5}=\frac{18}{60}$ $\frac{30(x+5)-30(x)}{x(x+5)}=\frac{18}{60}$ $\frac{30x+150-30x}{x(x+5)}-\frac{3}{10}$ $10(150)=3(x^2+5x)$ $3x^2+15x-1500=0$ $x^2+5x-500=0(shown)$	M1 for correct equation A1

Qns	Solutions (2Exp P2)	Marks
12d	$x^2+5x-500=0$ $(x-20)(x+25)=0$ $x=20 \quad or \quad x=-25$	M1 for factorisation A1 for both answers
12e	$\frac{30}{20}+\frac{30}{25}=2h\,42\min s$	M1 for either time A1