					Requirement	Possible points
exercise 1					scale is given for drawings	3
					Force 1 drawn to scale on 1st set of axes	2
					Force 2 drawn to scale on 2nd set of axes	2
	component table	Force 1	Arithmetic		seting up the Force equation correctly for Force 1	1
					spiting r-hat into cosθx-hat+sinθy-hat	1
					multiplying mass times acceleration	1
					distributing (FOIL-ing) the force into the component vectors	2
			units		using correct units for mass and accelaration	2
					calculation finishes with units that have the correct order of magnitude	2
					calculation leads to correct units for a force.	1
					Force 1 x-component entered in table	3
					Force 1 y-component entered in table	3
		Force 2	Arithmetic		seting up the Force equation correctly for Force 1	1
					spiting r-hat into cosθx-hat+sinθy-hat	1
					multiplying mass times acceleration	1
					distributing (FOIL-ing) the force into the component vectors	1
			units		using correct units for mass and accelaration	2
					calculation finishes with units that have the correct order of magnitude	2
					calculation leads to correct units for a force.	2
					Force 1 x-component entered in table	3
					Force 1 y-component entered in table	3
					x-components are summed correctly to yeild Resultant x-component	3
					y-components are summed correctly to yeild Resultant y-component	3
	F_R drawing				Force 2 has been drawn starting from the tip of Force 1 (or vice versa) on the lower set of axes and both are to scale.	3
					The Resultant force has been drawn from the origin of the lower axes to the tip of the sum of the component axes .	3
	cTangent				the angle of the reultant vector from the x-axis has been found using the arctan function	2
					the operand of arctan is set up as y-component over x-component	2
					units have been included and cancled correctly	1

	Ar			the quadrent of the Resultant force has been accounted for and the actual angle of the resultant vector has been found	2
	F_R calc			pythagorean theorum set up properly	5
				units have been calculated correctly	3
				Arithmetic has been performed correctly	5
	F_E calc			F=ma used properly	3
				units have been calculated correctly	2
				Arithmetic has been performed correctly	2
	% difs			the % difference has been found between the magnagues of the calculated and measured forces	7
				difference in angle between the calculated and meaured angles is calculated	5
				subtotal	90
e 2				scale is given for drawings	3
				Force 1 drawn to scale on 1st set of axes	2
				Force 2 drawn to scale on 2nd set of axes	2
	component table	Force 1	Arithmetic	seting up the Force equation correctly for Force 1	1
				spiting r-hat into cosθx-hat+sinθy-hat	1
				multiplying mass times acceleration	1
				distributing (FOIL-ing) the force into the component vectors	2
			units	using correct units for mass and accelaration	2
				calculation finishes with units that have the correct order of magnitude	2
				calculation leads to correct units for a force.	1
				Force 1 x-component entered in table	3
				Force 1 y-component entered in table	3
		Force 2	Arithmetic	seting up the Force equation correctly for Force 1	1
				spiting r-hat into cosθx-hat+sinθy-hat	1
				multiplying mass times acceleration	1
				distributing (FOIL-ing) the force into the component vectors	1
			units	using correct units for mass and accelaration	2
				calculation finishes with units that have the correct order of magnitude	2
				calculation leads to correct units for a force.	2
				Force 1 x-component entered in table	3
				Force 1 y-component entered in table	3

exercis				x-components are summed correctly to yeild Resultant x-component	3
				y-components are summed correctly to yeild Resultant y-component	3
	F_R drawing			Force 2 has been drawn starting from the tip of Force 1 (or vice versa) on the lower set of axes and both are to scale.	3
				The Resultant force has been drawn from the origin of the lower axes to the tip of the sum of the component axes .	3
	ArcTangent			the angle of the reultant vector from the x-axis has been found using the arctan function	2
				the operand of arctan is set up as y-component over x-component	2
				units have been included and cancled correctly	1
				the quadrent of the Resultant force has been accounted for and the actual angle of the resultant vector has been found	2
	F_R calc			pythagorean theorum set up properly	5
				units have been calculated correctly	3
				Arithmetic has been performed correctly	5
	F_E calc			F=ma used properly	3
				units have been calculated correctly	2
				Arithmetic has been performed correctly	2
	% difs			the % difference has been found between the magnagues of the calculated and measured forces	7
				difference in angle between the calculated and meaured angles is calculated	5
				subtotal	90
				scale is given for drawings	3
				Force 1 drawn to scale on 1st set of axes	2
				Force 2 drawn to scale on 2nd set of axes	2
		Force 1	Arithmetic	seting up the Force equation correctly for Force 1	1
				spiting r-hat into cosθx-hat+sinθy-hat	1
				multiplying mass times acceleration	1
				distributing (FOIL-ing) the force into the component vectors	2
			units	using correct units for mass and accelaration	2
				calculation finishes with units that have the correct order of magnitude	2
				calculation leads to correct units for a force.	1
				Force 1 x-component entered in table	3

exercise 3	component table			Force 1 y-component entered in table	3
		Force 2	Arithmetic	seting up the Force equation correctly for Force 1	1
				spiting r-hat into cosθx-hat+sinθy-hat	1
				multiplying mass times acceleration	1
				distributing (FOIL-ing) the force into the component vectors	1
			units	using correct units for mass and accelaration	2
				calculation finishes with units that have the correct order of magnitude	2
				calculation leads to correct units for a force.	2
				Force 2 x-component entered in table	3
				Force 2 y-component entered in table	3
		Force 3	Arithmetic	seting up the Force equation correctly for Force 1	1
				spiting r-hat into cosθx-hat+sinθy-hat	1
				multiplying mass times acceleration	1
				distributing (FOIL-ing) the force into the component vectors	1
			units	using correct units for mass and accelaration	2
				calculation finishes with units that have the correct order of magnitude	2
				calculation leads to correct units for a force.	2
				Force 3 x-component entered in table	3
				Force 3y-component entered in table	3
				x-components are summed correctly to yeild Resultant x-component	3
				y-components are summed correctly to yeild Resultant y-component	3
	F_R drawing			Force 2 has been drawn starting from the tip of Force 1 (or vice versa) on the lower set of axes and both are to scale.	3
				The Resultant force has been drawn from the origin of the lower axes to the tip of the sum of the component axes .	3
	ArcTangent			the angle of the reultant vector from the x-axis has been found using the arctan function	2
				the operand of arctan is set up as y-component over x-component	2
				units have been included and cancled correctly	1
				the quadrent of the Resultant force has been accounted for and the actual angle of the resultant vector has been found	2
	$_R$ calc			pythagorean theorum set up properly	5
				units have been calculated correctly	3

	F_f	Arithmetic has been performed correctly	5
	F_E calc	F=ma used properly	3
		units have been calculated correctly	2
		Arithmetic has been performed correctly	2
	% difs	the % difference has been found between the magnagues of the calculated and measured forces	7
		difference in angle between the calculated and meaured angles is calculated	5
		subtotal	106
		total	286