

## Elastic Collisions

### Collision A

	BEFORE COLLISION				AFTER COLLISION		
	Object 1	Object 2			Object 1	Object 2	
<b>Mass (kg)</b>	10	10		10	10		
<b>Velocity (m/s)</b>	5.0	0		0	5.0		
<b>Momentum (kgm/s)</b>	50	+	0	=	0	+	50
<b>Kinetic energy (J)</b>	125	+	0	=	0	+	125

### Collision B

	BEFORE COLLISION				AFTER COLLISION		
	Object 1	Object 2			Object 1	Object 2	
<b>Mass (kg)</b>	10	10		10	10		
<b>Velocity (m/s)</b>	5.0	-2.0		-2.0	5.0		
<b>Momentum (kgm/s)</b>	50	+	-20	=	-20	+	50
<b>Kinetic energy (J)</b>	125	+	20	=	20	+	125

### Collision C

	BEFORE COLLISION				AFTER COLLISION		
	Object 1	Object 2			Object 1	Object 2	
<b>Mass (kg)</b>	10	20		10	20		
<b>Velocity (m/s)</b>	5.0	0		-1.667	3.33		
<b>Momentum (kgm/s)</b>	50	+	0	=	-16.67	+	66.67
<b>Kinetic energy (J)</b>	125	+	0	=	13.89	+	111.12

### Collision D

	BEFORE COLLISION				AFTER COLLISION		
	Object 1	Object 2			Object 1	Object 2	
<b>Mass (kg)</b>	10	20		10	20		
<b>Velocity (m/s)</b>	5.0	2.0		1.0	4		
<b>Momentum (kgm/s)</b>	50	+	40	=	10	+	80
<b>Kinetic energy (J)</b>	125	+	40	=	5	+	160

## Inelastic Collisions

### Collision A

	BEFORE COLLISION			AFTER COLLISION
	Object 1	Object 2		Object 12
Mass (kg)	10	10		20
Velocity (m/s)	5.0	0		2.5
Momentum (kgm/s)	50	+	0	= 50
Kinetic energy (J)	125	+	0	> 62.5

### Collision B

	BEFORE COLLISION			AFTER COLLISION
	Object 1	Object 2		Object 12
Mass (kg)	10	10		20
Velocity (m/s)	5.0	-2.0		1.5
Momentum (kgm/s)	50	+	-20	= 30
Kinetic energy (J)	125	+	20	> 22.5

### Collision C

	BEFORE COLLISION			AFTER COLLISION
	Object 1	Object 2		Object 12
Mass (kg)	10	20		30
Velocity (m/s)	5.0	-5.0		-1.67
Momentum (kgm/s)	50	+	-100	= -50
Kinetic energy (J)	125	+	250	> 41.67

### Collision D

	BEFORE COLLISION			AFTER COLLISION
	Object 1	Object 2		Object 12
Mass (kg)	10	20		30
Velocity (m/s)	5.0	2.0		3
Momentum (kgm/s)	50	+	40	= 90
Kinetic energy (J)	125	+	40	> 135