

## ARROW TRAJECTORY MODELLING - TABLE I STANDARD SHOT RANGES

Arrow trajectories for the standard shot.  
Distance to first graze with changing initial velocity.

v (ft/s)	tgt rge (yd)	bow angle of departure		rise to apogee	drop from apogee	gd angle of departure		range on gd	dist to graze
		radians	degrees	(ft)	(ft)	radians	degrees	(YDS)	(yd)
300	50	0.02682	1.54	1.01	6.01	0.07	3.76	122	86
280	50	0.03080	1.76	1.16	6.16	0.07	4.08	115	83
260	50	0.03572	2.05	1.34	6.34	0.08	4.46	108	79
240	50	0.04194	2.40	1.57	6.57	0.09	4.92	102	76
220	50	0.04994	2.86	1.87	6.87	0.10	5.49	95	73
200	50	0.06047	3.46	2.27	7.27	0.11	6.21	89	70
180	50	0.07475	4.28	2.81	7.81	0.12	7.15	83	66
160	50	0.09482	5.43	3.57	8.57	0.15	8.44	77	63
140	50	0.12439	7.13	4.69	9.69	0.18	10.27	71	61

Distance to first graze with changing target range for the standard shot at velocity 300 ft/s.

300	50	0.02682	1.54	1.01	6.01	0.07	3.76	122	86
300	40	0.02145	1.23	0.64	5.64	0.06	3.64	118	79
300	30	0.01609	0.92	0.36	5.36	0.06	3.55	115	73
300	20	0.01072	0.61	0.16	5.16	0.06	3.48	113	67

**REMARKS:**

v - arrow velocity in feet per second  
tgt rge - range of target and, for the standard shot, the range at which the arrow is level with the point of launch (the bow)  
bow angle of departure - the upward angle of the arrow on firing  
rise to apogee - the height above the arrow rest that the arrow reaches, the highest point on the trajectory  
drop from apogee - the rise plus five feet, the standard shot bow height, this is the distance the arrow falls from the highest point to the ground  
gd angle of departure - the upward angle at which the arrow would have been launched from the ground behind the target to follow the same trajectory  
range on gd - the theoretical range that the arrow would travel if launched from the ground behind the archer  
dist to graze - the distance from the archer to the point at which the arrow would strike the ground for the standard shot