

ARROW TRAJECTORY MODELLING - TABLE II RANGES OVER FALLING GROUND

Ranges for standard shot arrow flight with falling ground behind the target
Ranges for drops in ground level of 10, 15 and 20 feet have been calculated

v (ft/s)	tgt rge (yd)	bow angle of departure		rise to apogee (ft)	drop in gd level (ft)	drop from apogee (ft)	gd angle of departure		range on gd (YDS)	dist to graze (yd)
		radians	degrees				radians	degrees		
300	50	0.02682	1.54	1.01	10	16.01	0.11	6.14	198	124
300	50	0.02682	1.54	1.01	15	21.01	0.12	7.04	227	138
300	50	0.02682	1.54	1.01	20	26.01	0.14	7.84	252	151
240	50	0.04194	2.40	1.57	10	16.57	0.14	7.82	161	105
240	50	0.04194	2.40	1.57	15	21.57	0.16	8.93	183	117
240	50	0.04194	2.40	1.57	20	26.57	0.17	9.92	203	126
180	50	0.07475	4.28	2.81	10	17.81	0.19	10.84	124	87
180	50	0.07475	4.28	2.81	15	22.81	0.21	12.29	140	95
180	50	0.07475	4.28	2.81	20	27.81	0.24	13.59	153	102

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 (standard shot bow height) plus the drop in ground level behind the target, this is the distance the arrow falls from the highest point to the ground
drop in gd level - the drop in ground level behind the target
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