- **GERAK PARABOLA**

Terdiri dari 2 macam gerak :

- gerak mendatar → gerak lurus beraturan
- gerak vertikal → gerak lurus berubah beraturan

Ciri : adanya sudut elevasi, yaitu sudut yang dibentuk oleh lintasan bola/peluru dengan bidang datar

Dua titik terpenting dalam gerak peluru (parabola)

- titik tertinggi
- titik terjauh

♠ WAKTU TITIK TERTINGGI

$V_{yp} = v_o \sin \alpha - g.t_p$

$0 = v_o \sin \alpha - g.t_p$

$$t_p = \frac{v_o \sin \alpha}{g}$$

♠ TITIK TERTINGGI

$y_p = v_o \sin\alpha . t - \frac{1}{2} g . t_p^2$

$$y_p = \frac{V_o^2 \sin^2 \alpha}{2g}$$

♠ WAKTU TITIK TERJAUH

$$t_x = \frac{2\, v_o \sin \alpha}{g}$$

♠ TITIK TERJAUH

$x = v_o \cos . t$

$$x = v_o \cos . \frac{2v_o \sin\alpha}{g}$$

$$x = \frac{2v_o^2 \sin\alpha \cos\alpha}{g}$$

$$\mathbf{x = \frac{v_o^2 \sin 2\alpha}{g}}$$

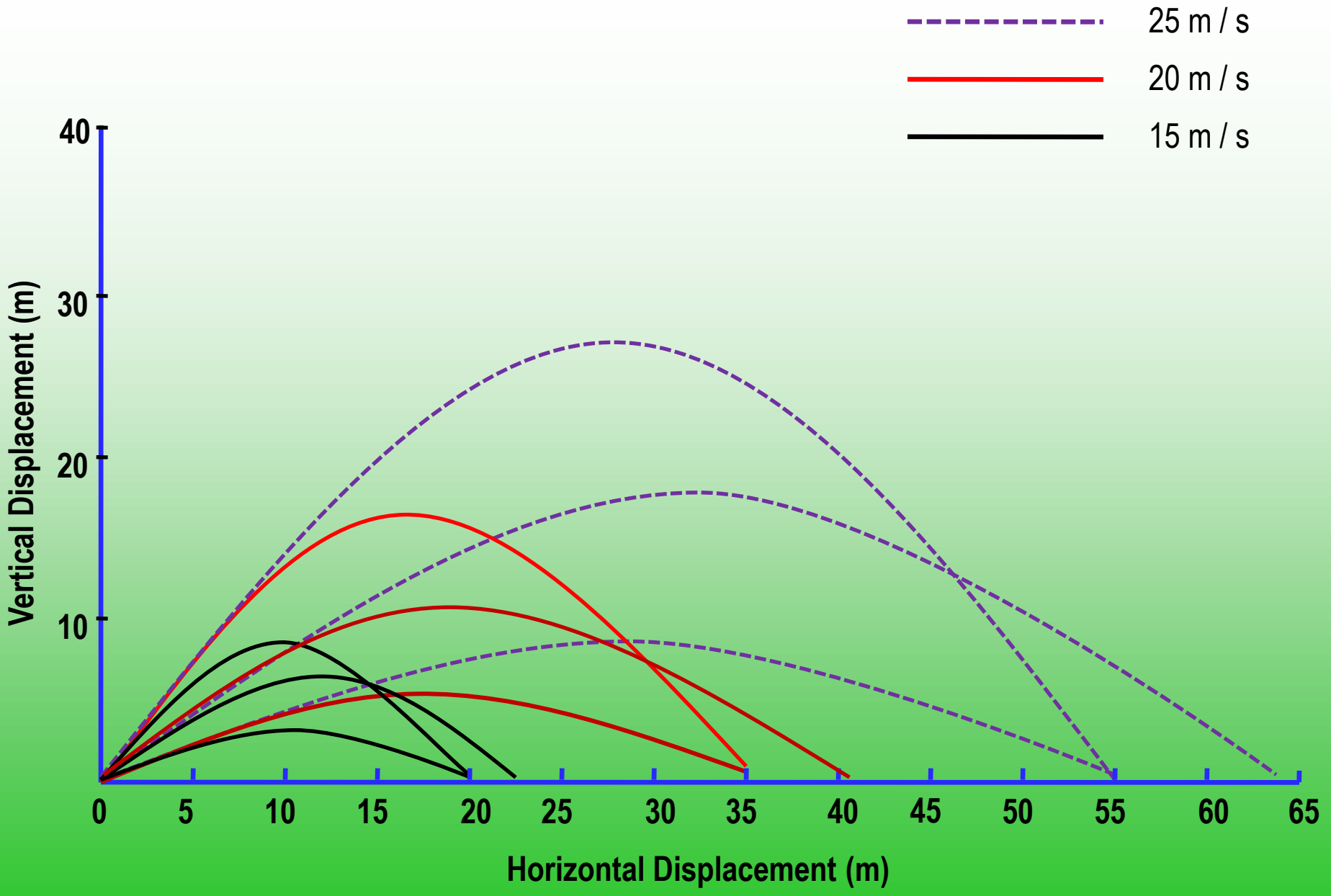
25 m / s
20 m / s
15 m / s
40
30
20
10
Vertical Displacement (m)
0
5
10
15
20
25
30
35
40
45
50
55
60
65
Horizontal Displacement (m)

TABLE 3-1 Variation of Optimum Angle with Height and Speed of Release in Shot-Putting[a]

Height of Release (m)	*Speed of Release (m/s)*					
	9	*10*	*11*	*12*	*13*	*14*
1.8	39.9° (9.90 m)	40.7° (11.87 m)	41.4° (14.03 m)	41.9° (16.40 m)	42.3° (18.96 m)	42.7° (21.73 m)
2.0	39.4° (10.07 m)	40.3° (12.04 m)	41.0° (14.21 m)	41.6° (16.57 m)	42.0° (19.14 m)	42.4° (21.91 m)
2.2	39.0° (10.23 m)	39.9° (12.21 m)	40.7° (14.38 m)	41.3° (16.75 m)	41.8° (19.32 m)	42.2° (22.09 m)
2.4	38.5° (10.39 m)	39.5° (12.37 m)	40.3° (14.55 m)	41.0° (16.92 m)	41.5° (19.50 m)	41.9° (22.27 m)

[a] The distances obtained by the indicated combinations of speed of release, height of release, and optimum angle are shown in parentheses. These distances do not include extra distance (approximately 0.3 m) that the shot is in advance of the inside edge of the stop board at the instant of release.