

6x30 Binoculars

(inverted image without
erection prism)

$$|MP| = 6$$

$$MP = -6$$

$$D_{EP} = 30 \text{ mm}$$

$$f_{obj} = 150 \text{ mm}$$

Exit Pupil Size:

(m is constant)

$$D_{XP} = D_{EP} / |MP|$$

$$D_{XP} = 5 \text{ mm}$$

Eye Relief:

$$MP = -6 = -\frac{f_{obj}}{f_{eye}}$$

$$f_{eye} = 25 \text{ mm}$$

$$L = f_{obj} + f_{eye}$$

$$L = 175 \text{ mm}$$

Image stop through
eye lens:

or

$$E.R. = (1-m) f_{eye}$$

$$\frac{1}{z'} = \frac{1}{z} + \frac{1}{f_{eye}} \quad z = -L$$

$$m = \frac{1}{MP} = -\frac{1}{6}$$

$$z' = \text{Eye Relief} = 29.2 \text{ mm}$$

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