Physics 30 - Lesson 6
Reflection of Light

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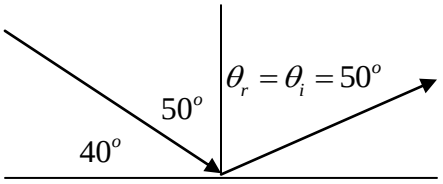
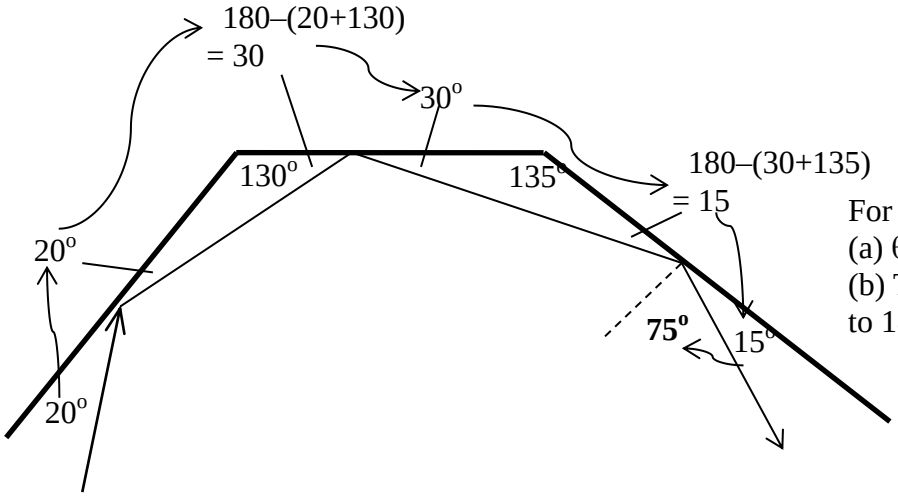
Practice problems

1)



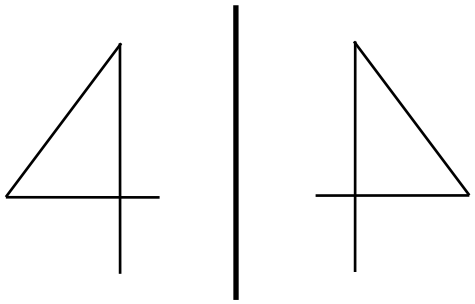
For the law of reflection, the angle of incidence and the angle of reflection are measured from the normal.

2)

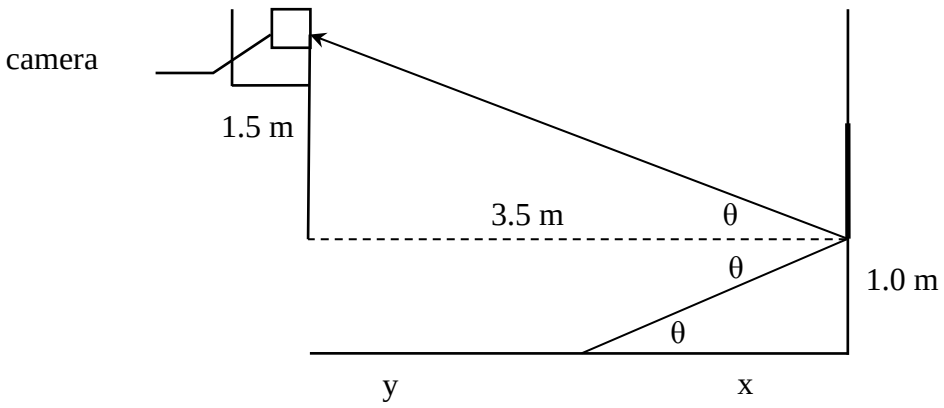


For this problem we use two ideas.
(a) $\theta_i = \theta_r$
(b) The angles of a triangle add up to 180^o.

3)



4)



$$\frac{x}{1.0} = \frac{3.5}{1.5}$$

$$x = \frac{3.5(1.0)}{1.5}$$

$$x = 2.333$$

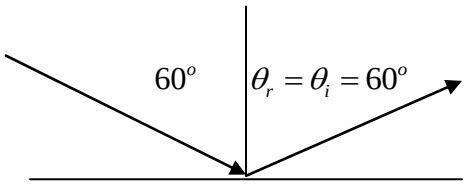
$$y = 3.5 - x$$

$$y = 3.5 - 2.333$$

$$\boxed{y = 1.17m}$$

Assignment

1)



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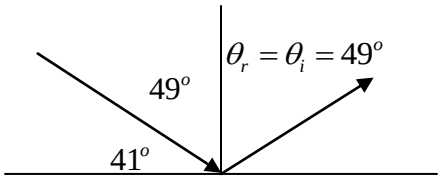
2)



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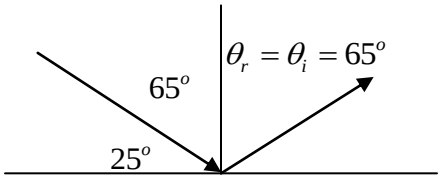
3)



$65^o + 65^o = 130^o$

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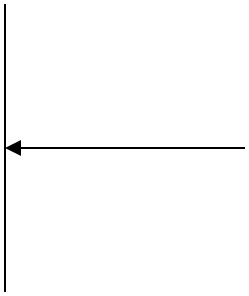
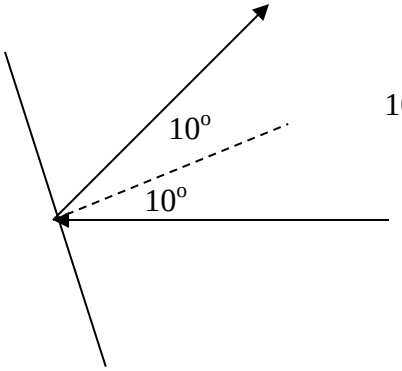
4)





$10^o + 10^o = 20^o$

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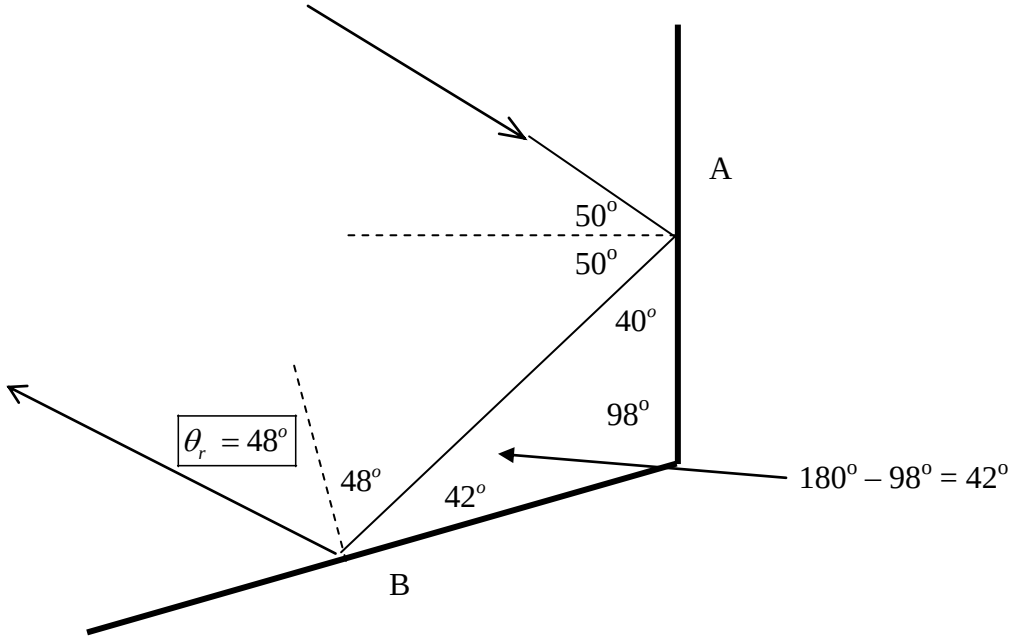
5)



$180^o - 98^o = 42^o$

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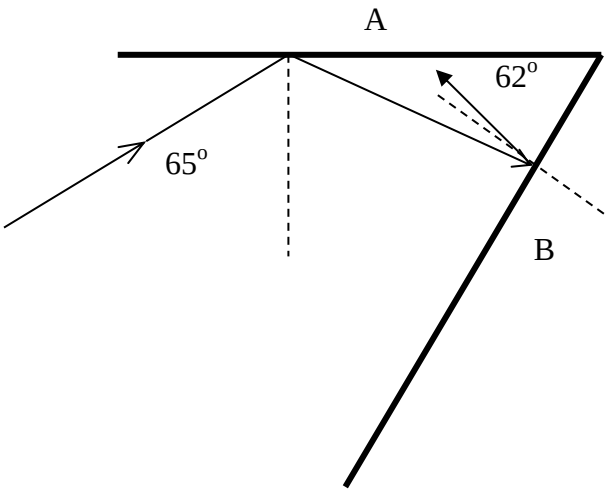
6)



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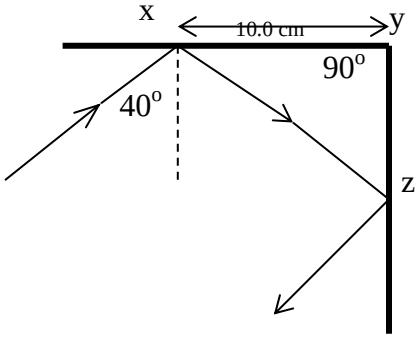
$\theta_i = 180^o - 62^o - 25^o - 90^o$

$\theta_i = 3^o$

$\boxed{\theta_r = \theta_i = 3^o}$

7)



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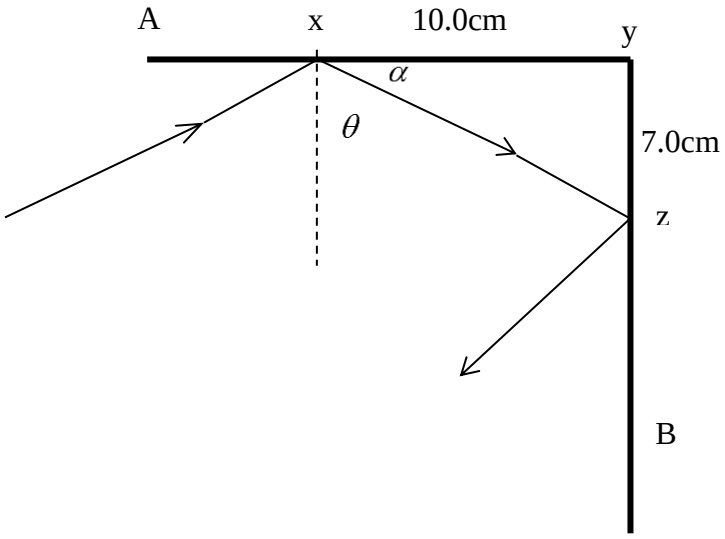
$\cos\theta = \frac{xy}{xz}$

$xz = \frac{xy}{\cos\theta}$

$xz = \frac{10.0cm}{\cos 50}$

$\boxed{xz = 15.6cm}$

8)



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$\alpha = \tan^{-1}\frac{7.0cm}{10.0cm}$

$\alpha = 35^o$

$\theta = 90^o - \alpha = 90^o - 35^o$

$\boxed{\theta = 55^o}$

9)

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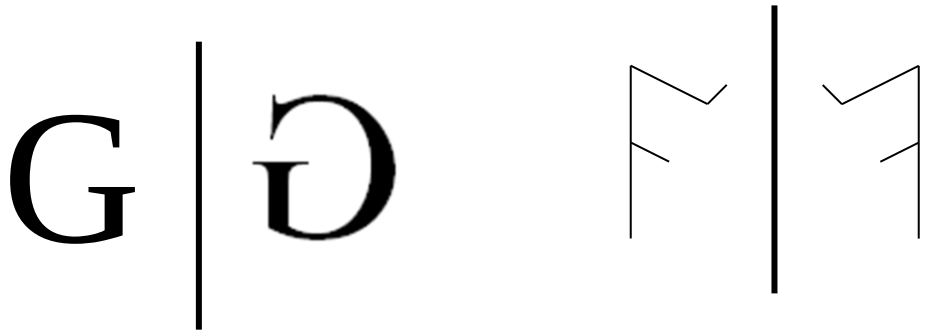

10)

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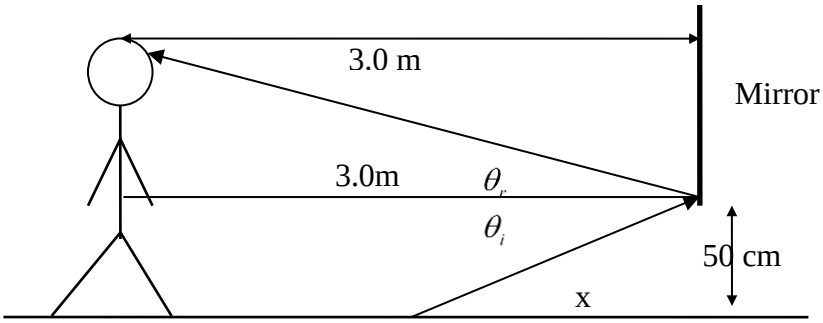

$$\frac{3.0m}{1.0m} = \frac{x}{0.50m}$$

$$\boxed{x = 1.50m}$$

11)

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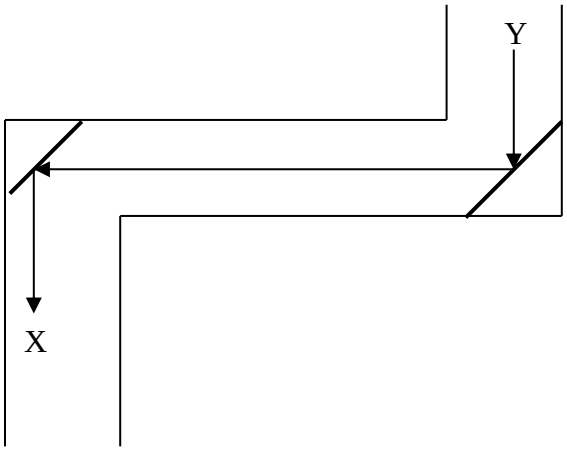

12)

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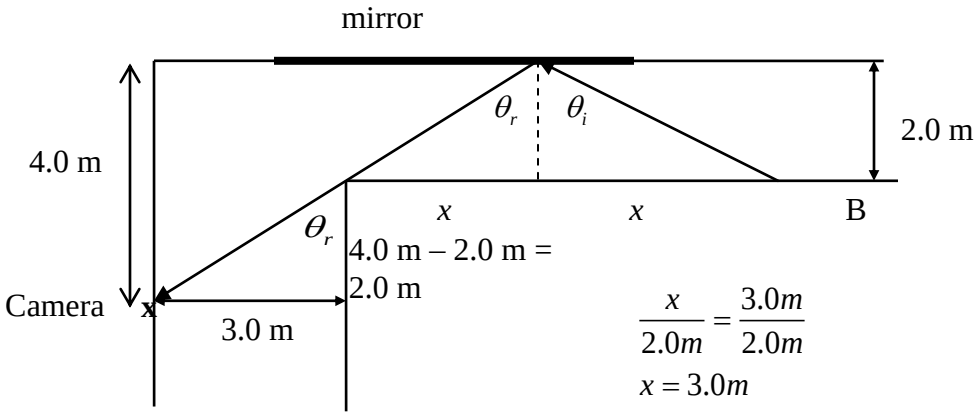

$$\frac{x}{2.0m} = \frac{3.0m}{2.0m}$$

$$x = 3.0m$$

$$2x = 2(3.0m) = \boxed{6.0m}$$

13)

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