The Laws Continued

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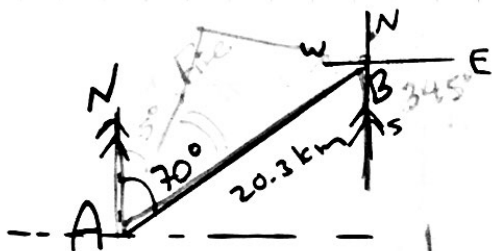#10)

Pg 327

$$\angle O = 90° - 5.5°$$
$$= 84.5°$$

SAS ⇒ cosine law

$$(ST)^2 = (OS)^2 + (OT)^2 - 2(OS)(OT)\cos O$$
$$= 90^2 + 55.9^2 - 2(90)(55.9)\cos 84.5°$$
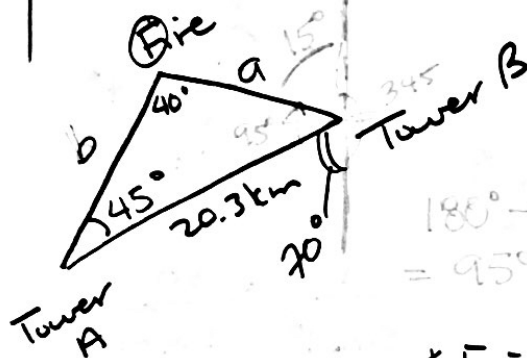
$$ST \doteq 101$$

∴ The length of the shadow is ~ 101 m

Ⓑ

#8) Pg 327

2-pattern

$$180° - 70° - 15°$$
$$= 95°$$

$$\angle F = 180 - 45° - 95°$$
$$= 40°$$

$$\frac{b}{\sin 95°} = \frac{20.3}{\sin 40°}$$

$$b = \frac{20.3 \sin 95°}{\sin 40°}$$

$$= 31.46 \text{ km}$$
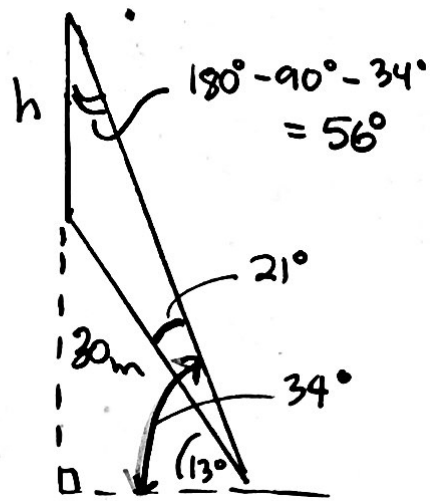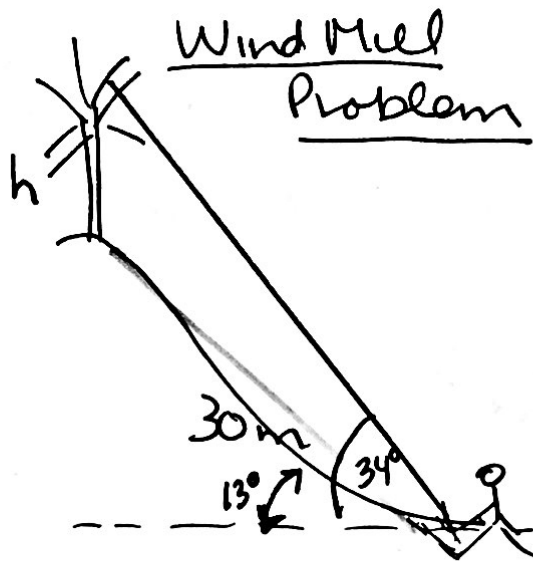
$$\frac{a}{\sin 45°} = \frac{20.3}{\sin 40°}$$

$$a = \frac{20.3 \sin 45°}{\sin 40°}$$

$$a = 22.3 \text{ km}$$

#10

Pg 319

Wind Mill Problem

$180° - 90° - 34°$
$= 56°$

$21°$

$30m$

$34°$

$13°$

$$\frac{h}{\sin 21°} = \frac{30}{\sin 56°}$$

$$h = \frac{30 \sin 21°}{\sin 56°}$$

$$h = 12.968$$

$$h \approx 13 \, m$$