

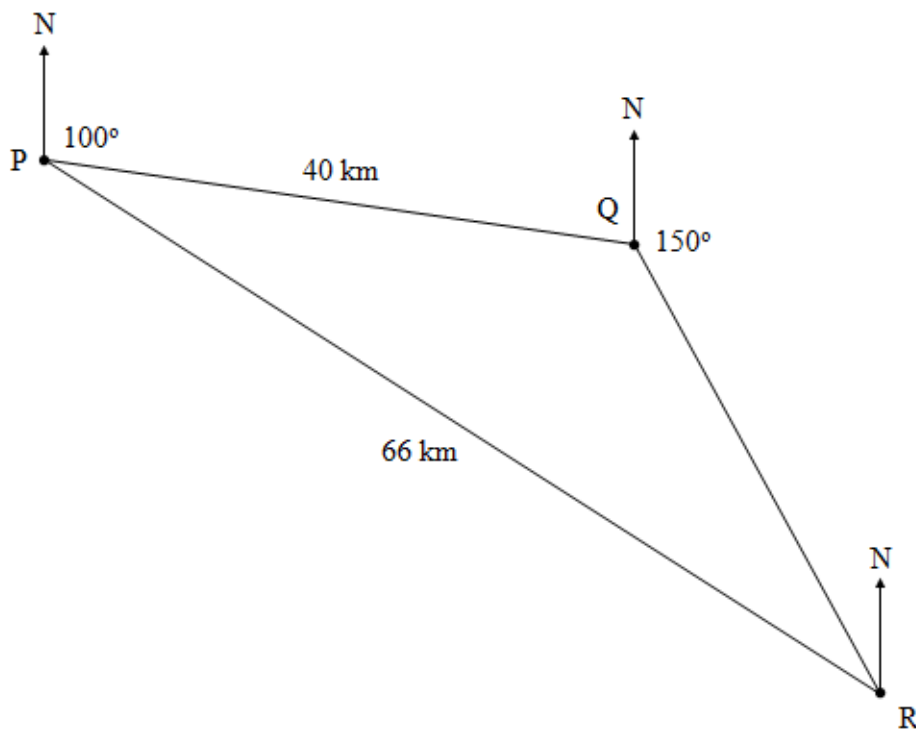
## Banker Questions 2

1. The diagram below, which is not drawn to scale, represents the positions of three mobile phone masts.

Mast Q is on a bearing of  $100^\circ$  from mast P and is 40km away.

The bearing of mast R from mast Q is  $150^\circ$ .

Masts P and R are 66km apart.



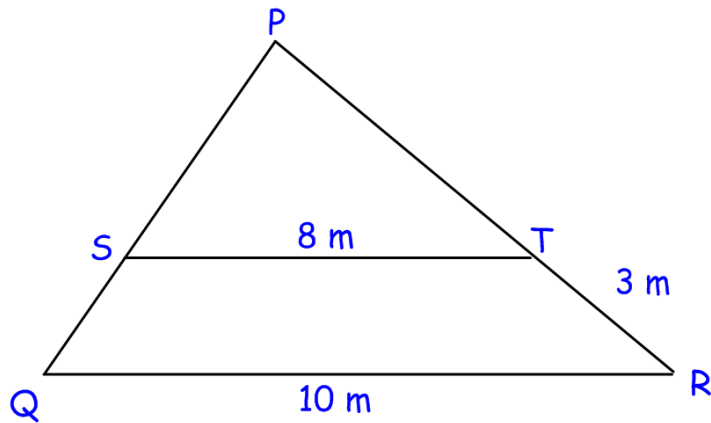
- (a) Use the information in the diagram to establish the size of angle PQR. **2 RE**
- (b) Hence find the bearing of mast P from mast R. **4 RE**

2. Solve the equation

$$7 \sin x^\circ - 2 = 0, \text{ for } 0 \leq x < 360.$$

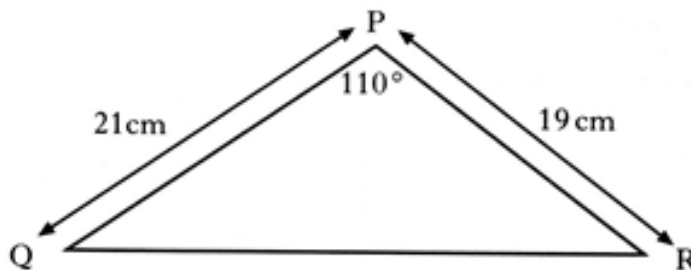
**3 KU**

3. The diagram shows part of the roof of an aircraft hangar.  
 ST is parallel to QR.  
 Calculate the length of the spar PT.



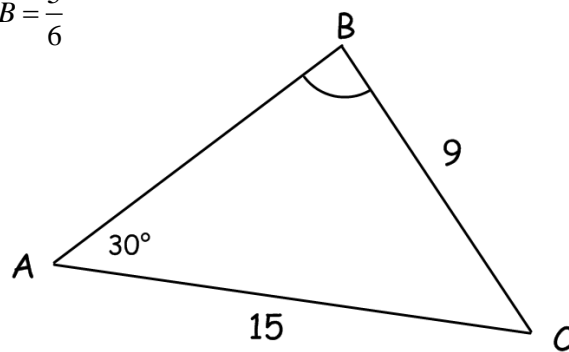
3 RE

4. Calculate the area of the triangle PQR.



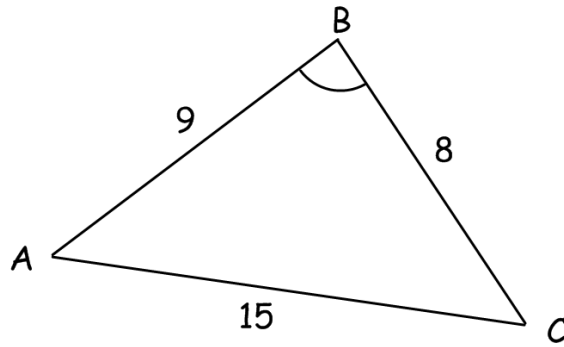
2 KU

5. In triangle ABC show that  $\sin B = \frac{5}{6}$



3 KU

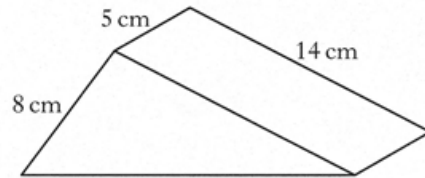
6. In triangle ABC show that  $\cos A = \frac{121}{135}$ .



3 KU

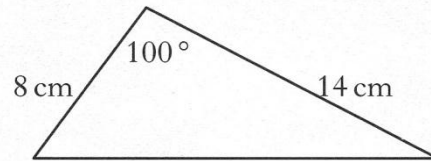
7. A metal doorstep is prism shaped,  
as shown in Figure 1

Figure 1.



The uniform cross-section  
as shown in Figure 2:

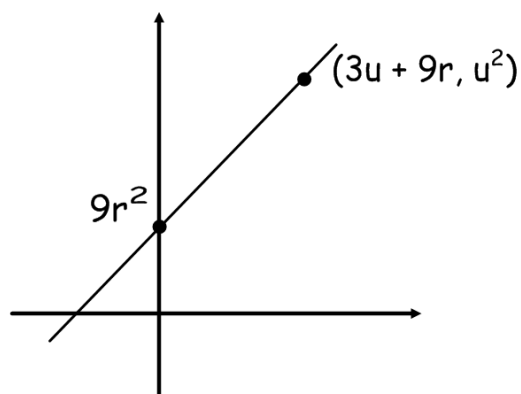
Figure 2.



Find the volume of metal required to make the doorstep.

4 RE

8. A line passes through the point  $(0, 9r^2)$  and  $(3u + 9r, u^2)$  as shown in the diagram.



- a) Find an expression for the gradient of this line in its simplest form.

4 RE

- b) Find the equation of the line when  $r = 1$  and  $u = 3$  and give your answer with integer coefficients.

3 RE