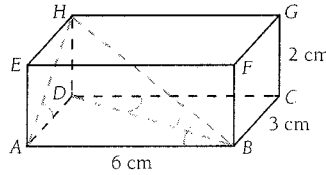## Exercise

1 The figure shown is a cube.
Find the size of:
a $\angle CFG$
b $\angle CEG$.
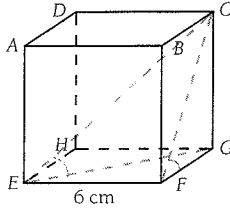
In this exercise, give answers for angles to the nearest minute.

2 The figure shown is a rectangular prism.
Calculate the size of:

a $\angle HAD$ b $\angle CDB$

c $\angle HBA$ d $\angle HBD$.

3 The figure shown is a right square pyramid. Calculate:
a the length of PR (to 3 significant figures)
b the height OT (to 3 significant figures)
c the size of $\angle TPQ$
d the size of $\angle TPO$
e the size of $\angle TMO$, where M is the midpoint of QR.
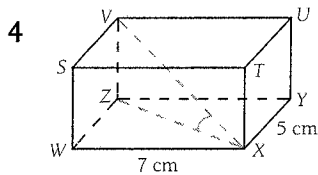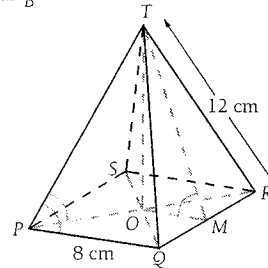
4 The figure drawn is a rectangular prism. Given that $\angle VXZ = 21°43'$, calculate the height of the prism, VZ, to the nearest millimetre.

5 The figure is a rectangular prism where the ratio of the sides $EF:EH:EA = 3:2:5$. Find:
a the angle between AF and EF
b the angle DF makes with the base $EFGH$
c the angle between the plane $ABGH$ and $EFGH$
d the angle AG makes with the plane $BCGF$.
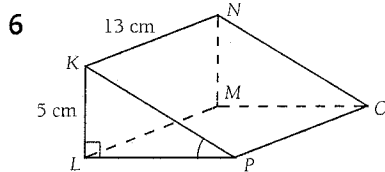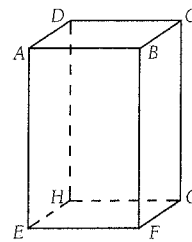
6 The figure drawn is a right triangular prism where $KL \perp LP$ and $\angle KPL = 17°35'$. Find:
a the length of KP (to the nearest millimetre)
b the size of $\angle KPN$.

7 A flagpole stands at one corner P of a level square field $PQRS$, each side of which is 120 m long. If the angle of elevation of the top of the pole from Q is $13°19'$, find:
a the height of the flagpole (to the nearest centimetre)
b the angle of elevation of the top of the pole from R.
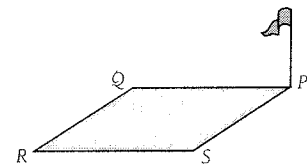
8 A right regular hexagonal pyramid has base edges of 9 cm and a height of 12 cm. Find:
a the angle one of the slant edges makes with the base
b the angle one of the triangular faces makes with the base.
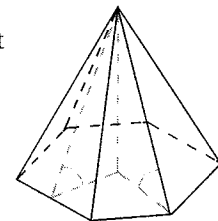
14:08 Three-dimensional Problems

1 a 45°0'   b 35°16'
2 a 33°41'   b 26°34'   c 31°0'   d 16°36'
3 a 11·3 cm   b 10·6 cm   c 70°32'   d 61°52'   e 69°18'
4 3·4 cm
5 a 59°2'   b 54°12'   c 68°12'   d 29°7'
6 a 16·6 cm   b 38°4'
7 a 28·40 m   b 9°30'
8 a 53°8'   b 57°0'