ANGLES

| Page	Description
1	Draw angles
2	Measure and draw angles
3	Draw angles
4	Measure, draw and angle questions.You need sheet 5 as well
5	Angles to measure for sheet 4
6	Angle Calculation facts
7	Calculate missing angles
8	Calculate missing angles puzzle
9	Parallel lines questions 1 to 4
10	Parallel lines questions 5 to 8
11	Parallel lines questions 9 to 12
12	Angle calculations recap questions 1 to 3
13	Angle calculations recap questions 4 to 7

50°   Acute
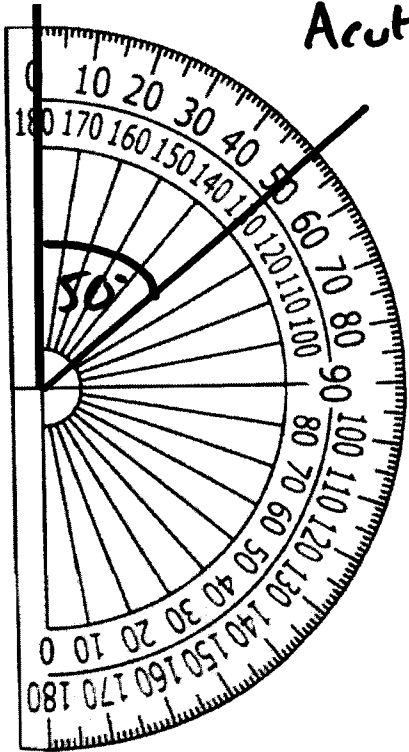
110°   Obtuse
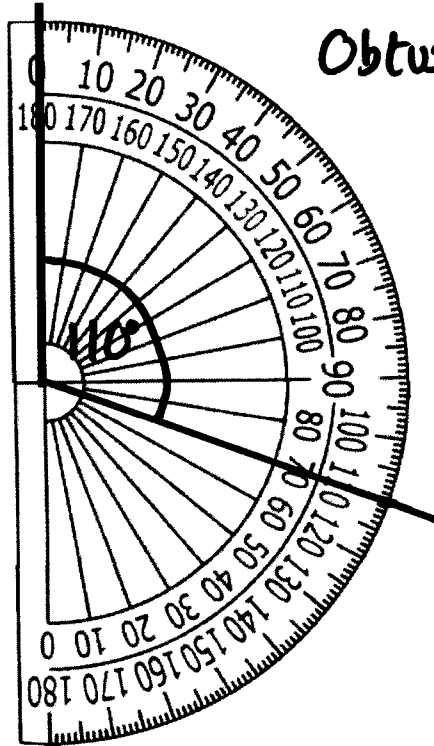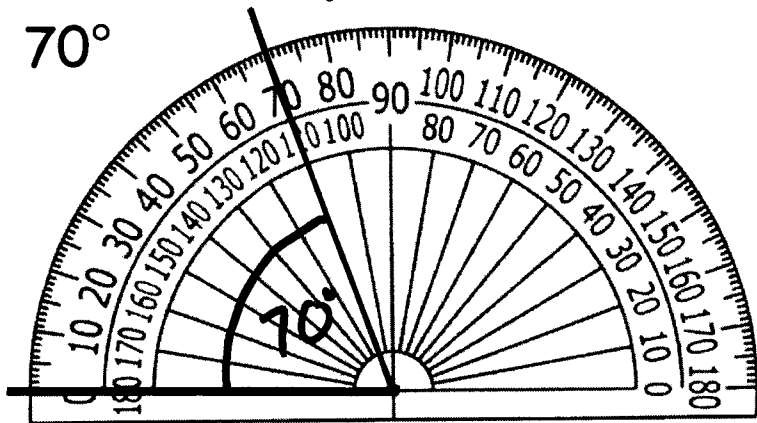
200°   (180 + **20** = 200)   Reflex

300°

50°

110°

200°
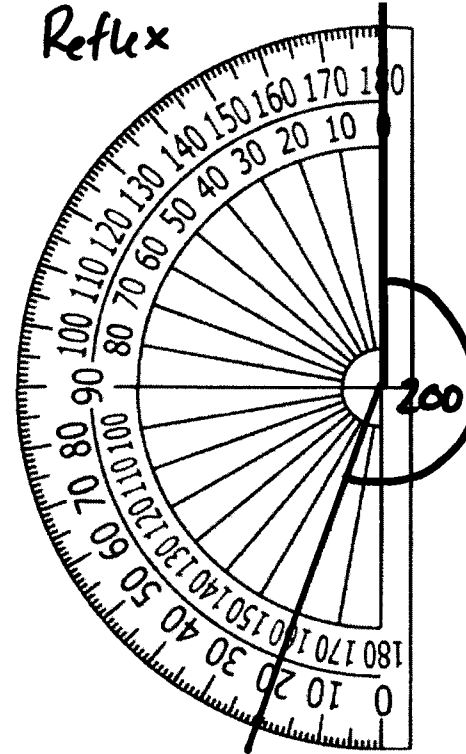
300°
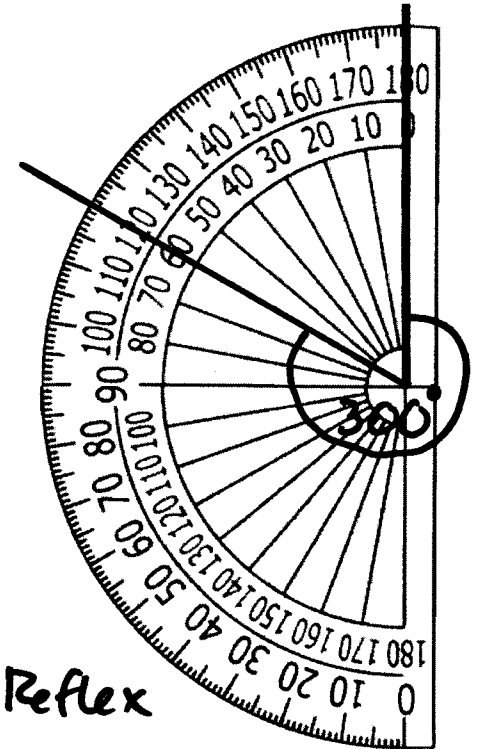
Reflex

180 + **120** = 300

70°   Acute

70°

150°   Obtuse

150°
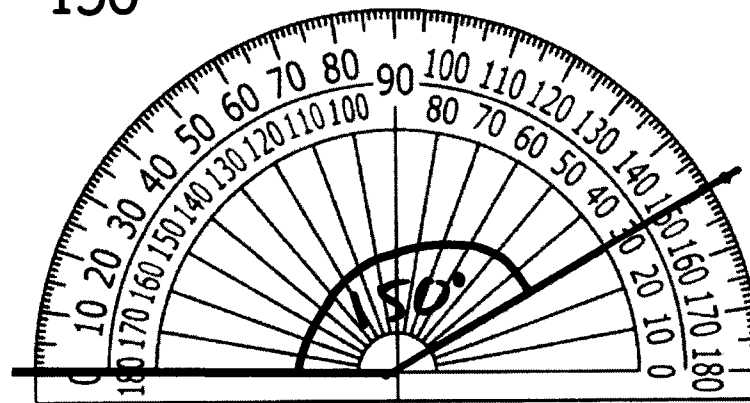
Draw and label these angles. We are drawing each one clockwise.

Also say whether each angle is acute, obtuse or reflex

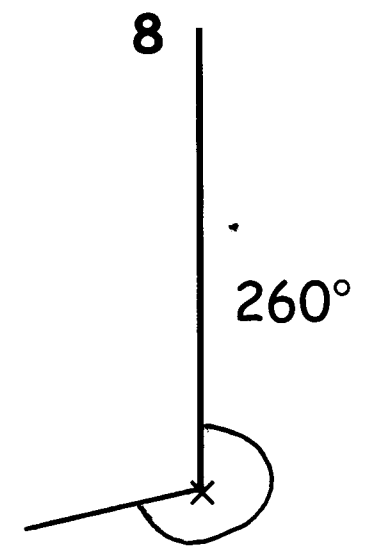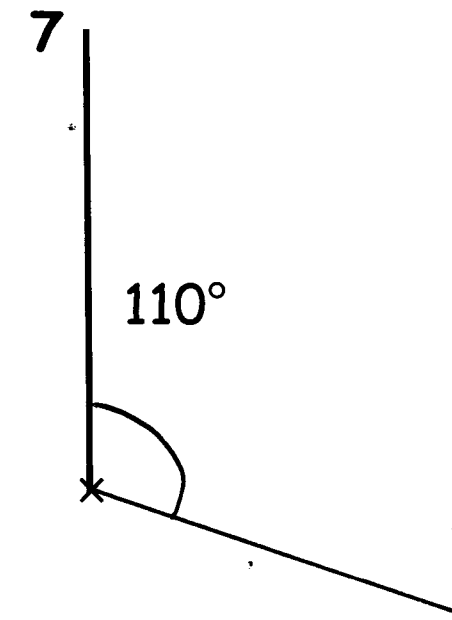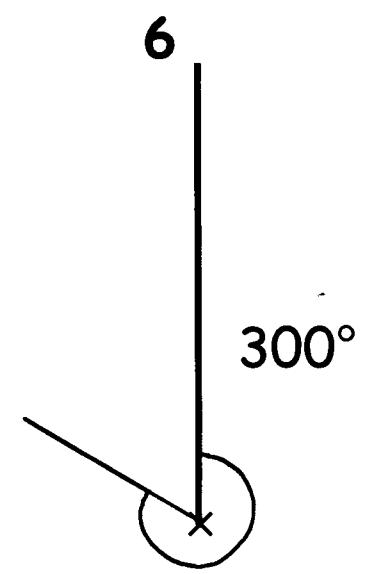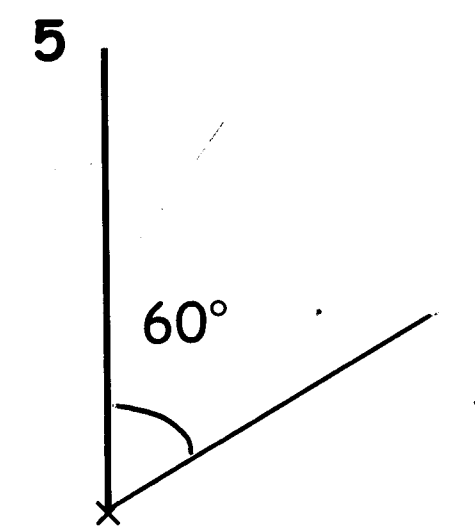①

For each of these 4 angles estimate which group you think the answer will be in, then measure it accurately

Draw these angles
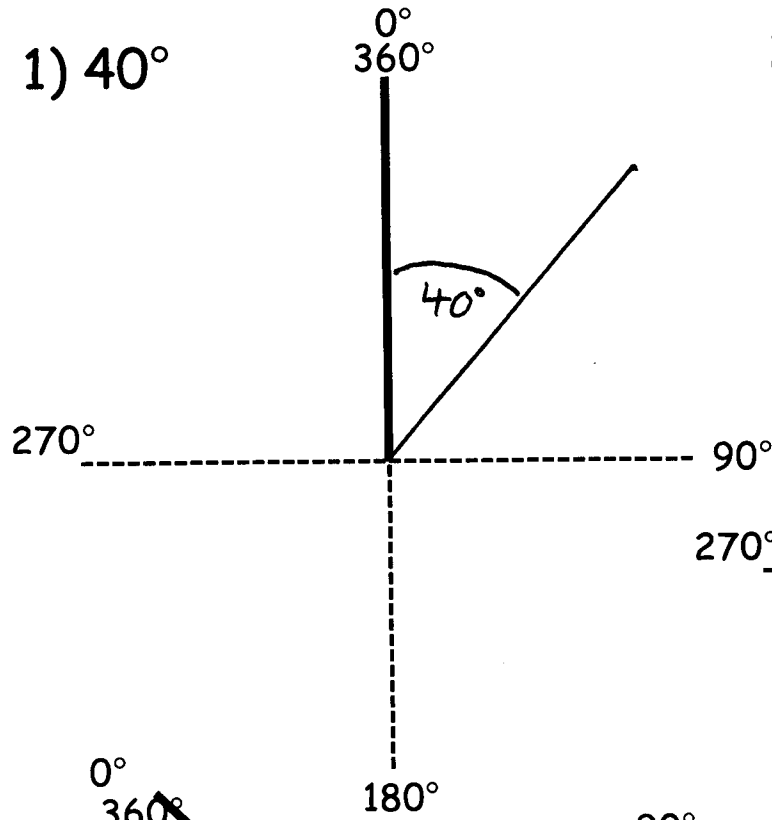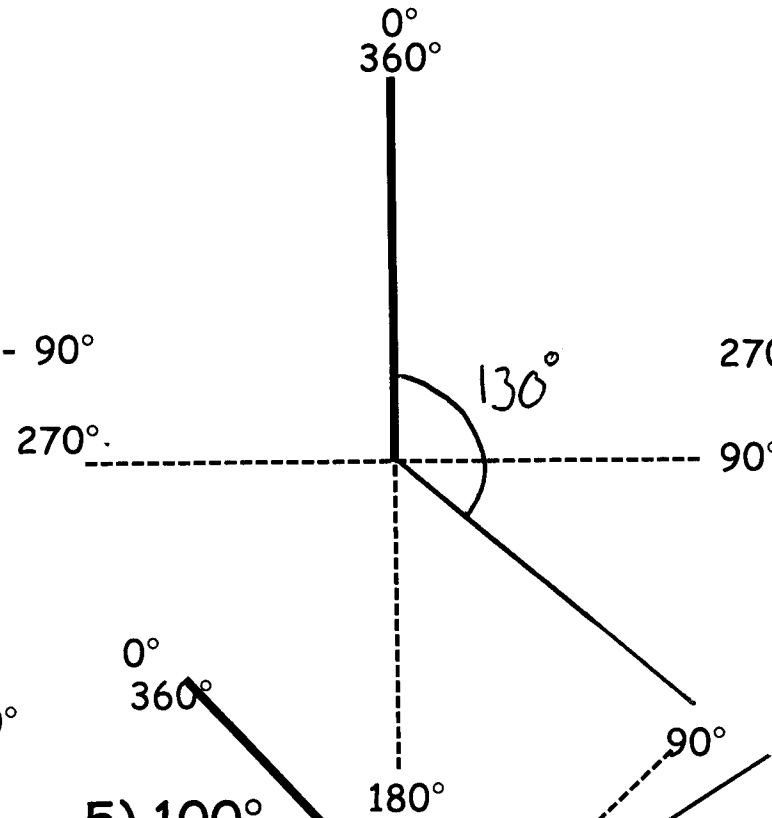
1
- (0-90)
- 90-180
- 180-270
- 270-360

40°

2

0-90
90-180
180-270
(270-360)

330°

4

0-90
90-180
(180-270)
270-360

240°

3
- 0-90
- (90-180)
- 180-270
- 270-360

110°

5

60°

6

300°

7

110°

8

260°

②
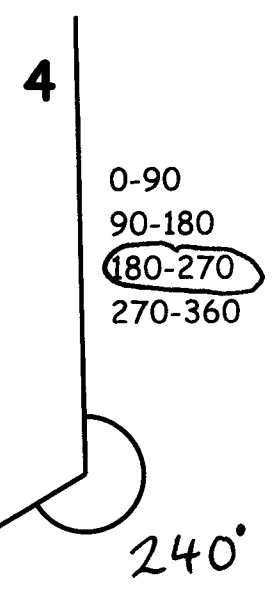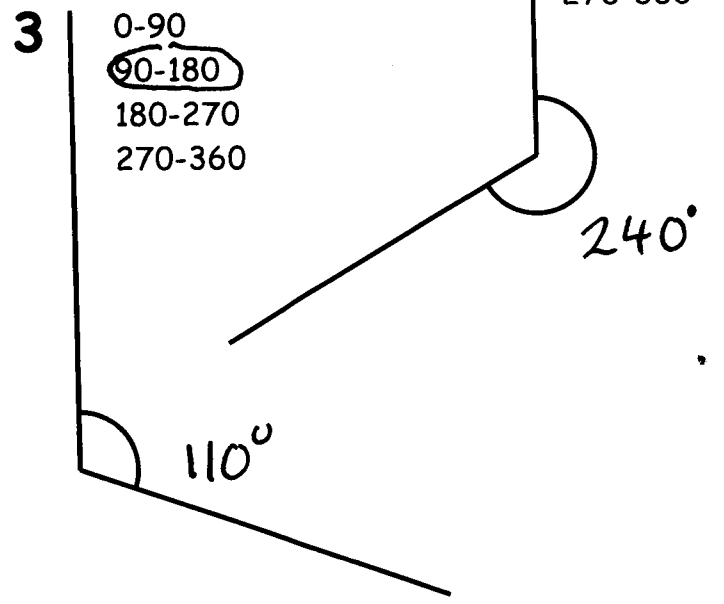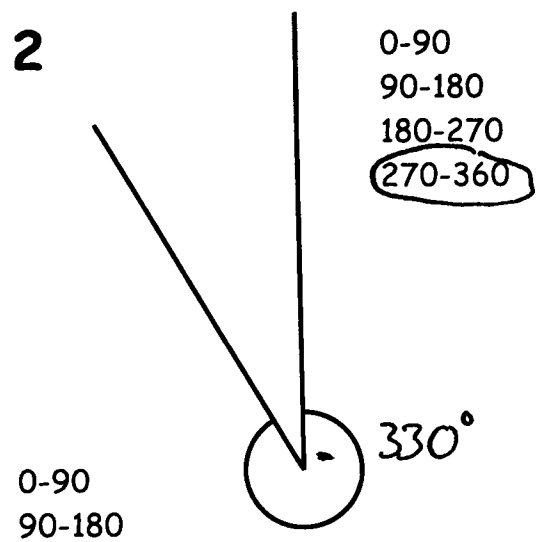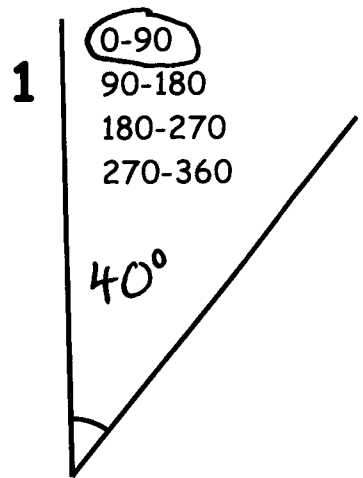
Draw these angles. Start at the bold black line and go CLOCKWISE

1) 40°

0°
360°

270°   90°

40°

180°

2) 130°

0°
360°

270°   90°

130°

180°

3) 210°

0°
360°

270°   90°

210°

180°

4) 280°

0°
360°

90°

280°

270°   180°

5) 100°

0°
360°

90°

100°

270°   180°

6) 250°

0°
360°

250°

270°

180°   90°

③
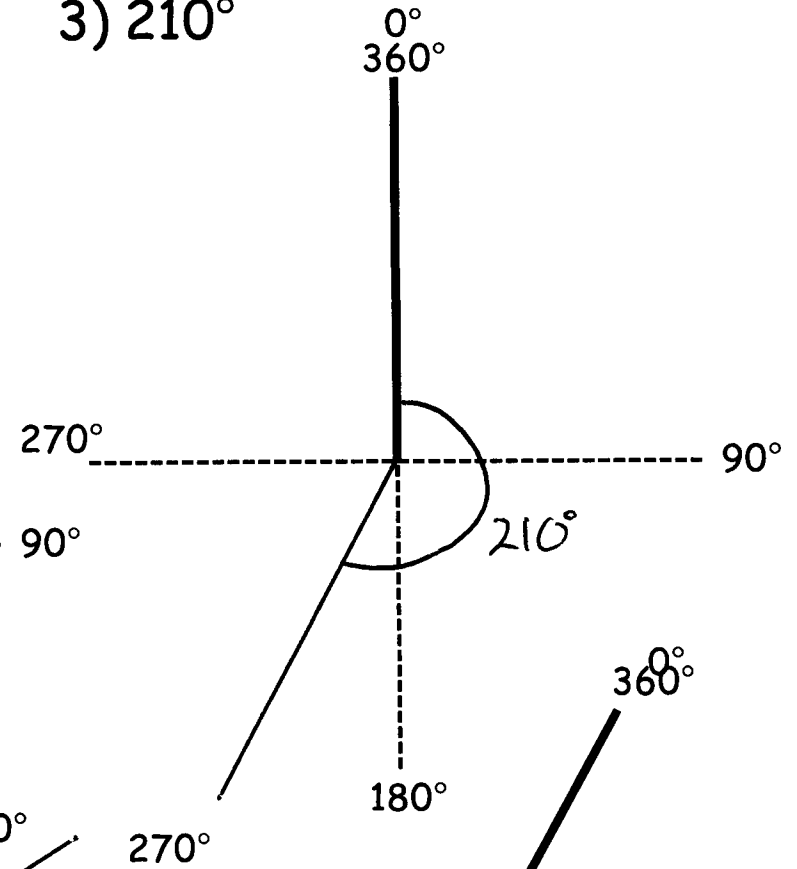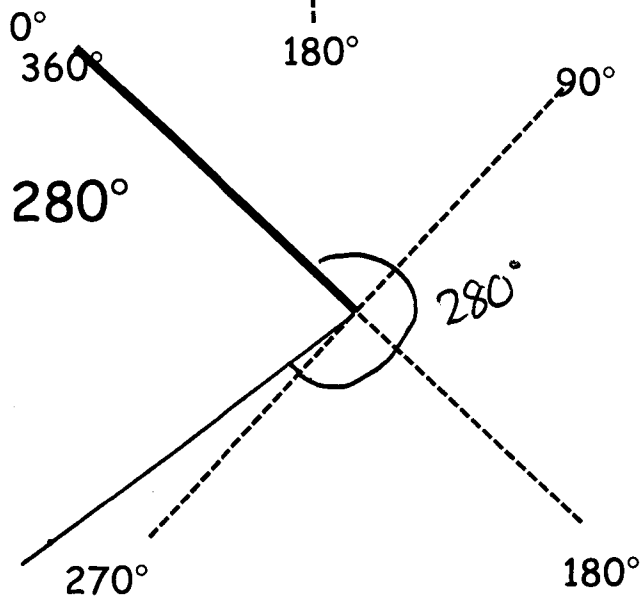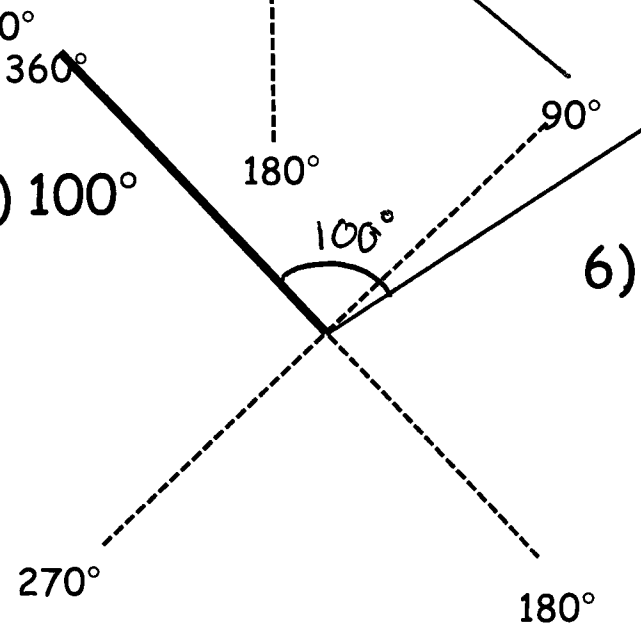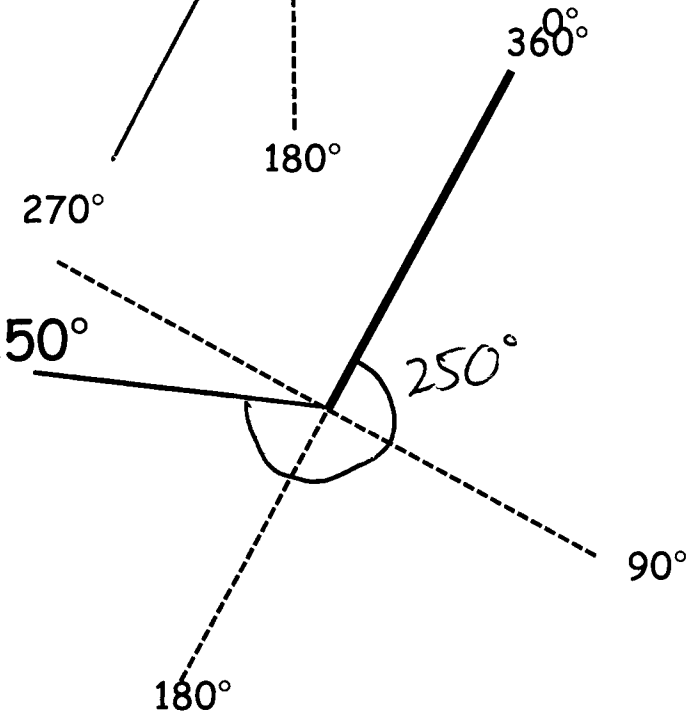
Angles

Look at the ten angles labelled A to J.

1   Which angle is a right angle? _____ **F**_____

2   Which angle is a straight line? _____ **C**_____

3   Write down the letters of the angles you think are less than 90^0. **A , D, E**

4   Write down the letters of the angles you think are more than 180^0. **G , I , J**

5   Which is the biggest of the 10 angles? _____ **I**_____

6   Which is the smallest of the 10 angles? _____ **E**_____

7   How many degrees in a right angle? _____ **90°**_____

8   How many degrees make a straight line? _____ **180°**_____

9   How many degrees make a full turn? _____ **360°**_____

10   Fill in the guess column in the table.

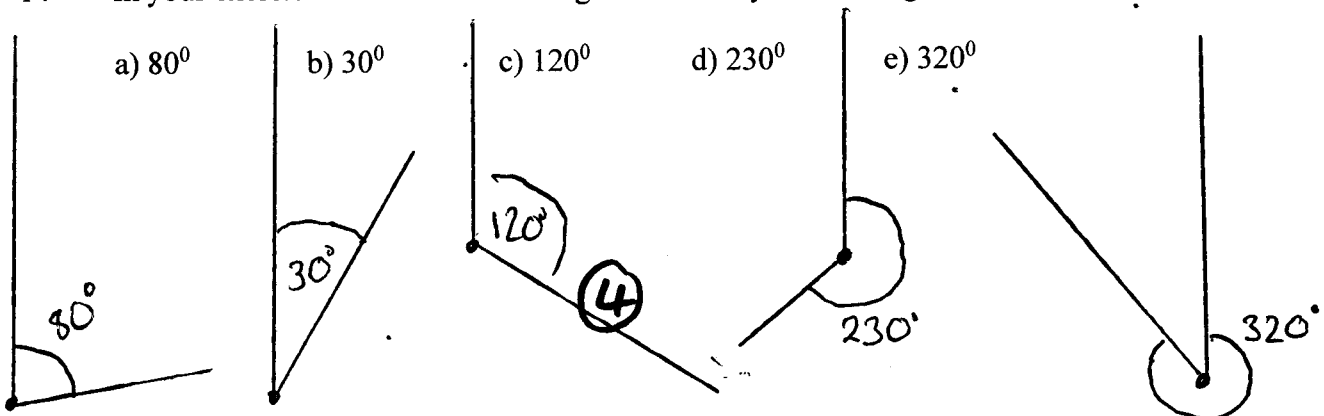| Angle	Guess	Actual Size
A		60°
B		130
C		180
D		50
E		20
F		90°
G		230°
H		160°
I		330°
J		190

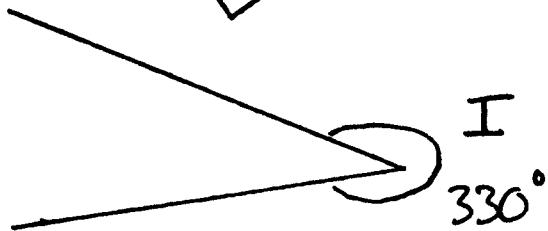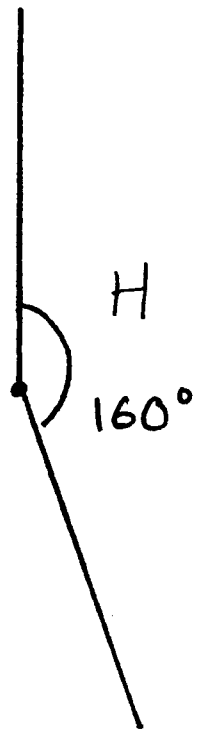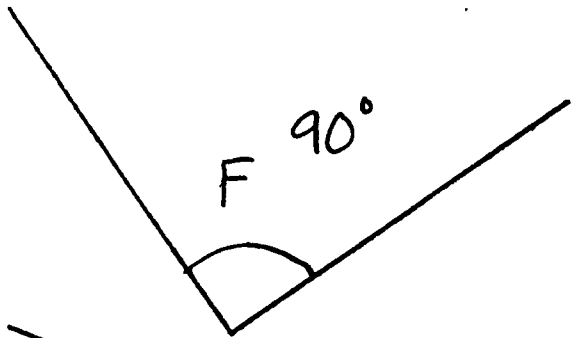11   Measure the angles with your angle measurer; write the answers in the actual size column of the table.
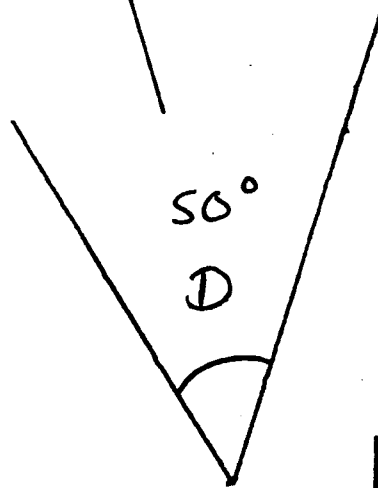
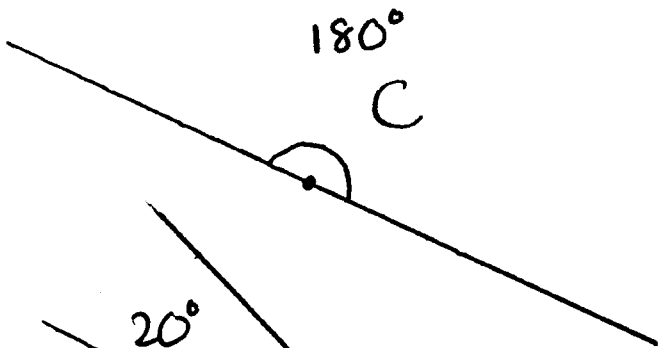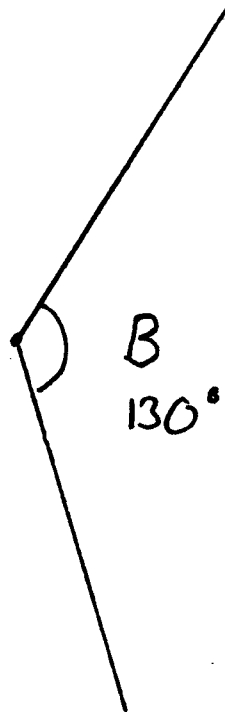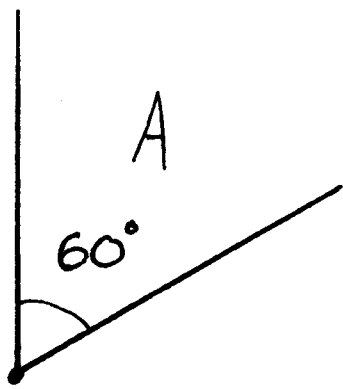12   Using the letters A to J write down the angles in order of size starting with the smallest.

Smallest _____ **E, D, A, F, B, H, C, J, G, I**_____ Largest
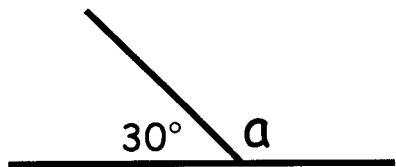
13   How many degrees in a quarter of a turn? _____ **90°**_____

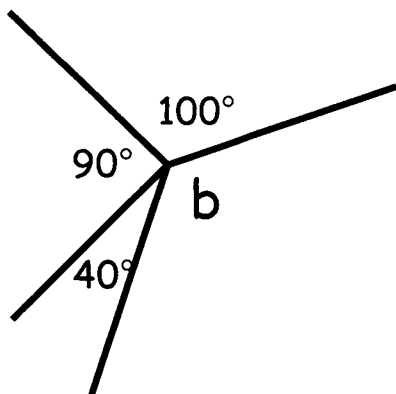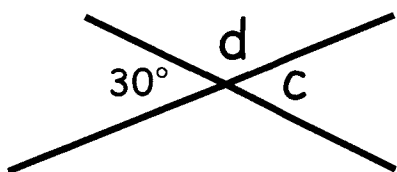14   In your exercise book draw these angles accurately. Don't forget to label them.

a) 80^0 b) 30^0 c) 120^0 d) 230^0 e) 320^0

A

60°

B
130°

180°
C

20°
E

50°
D

F 90°

G
230°

H
160°

I
330°

J 190°

⑤

Angle Facts

30° a
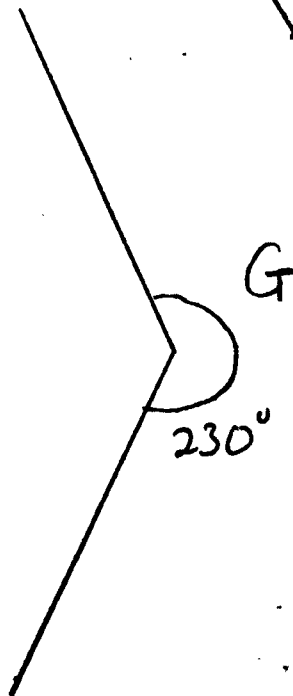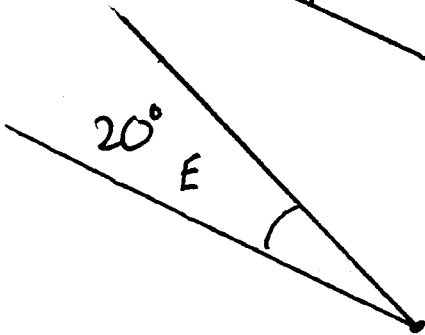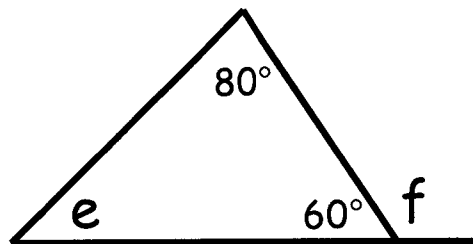
a = 150°
reason
Angles on a straight line add up to 180°
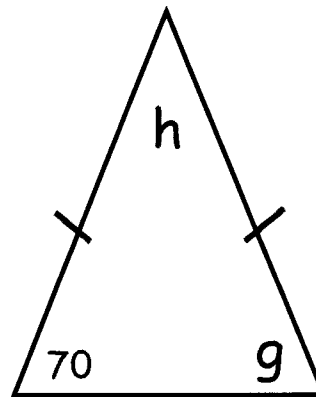
100°
90°
40°
b

b = 130°
reason
angles round a point add up to 366°

30°
d
c

c = 30°
reason vertically opposite angles are equal.
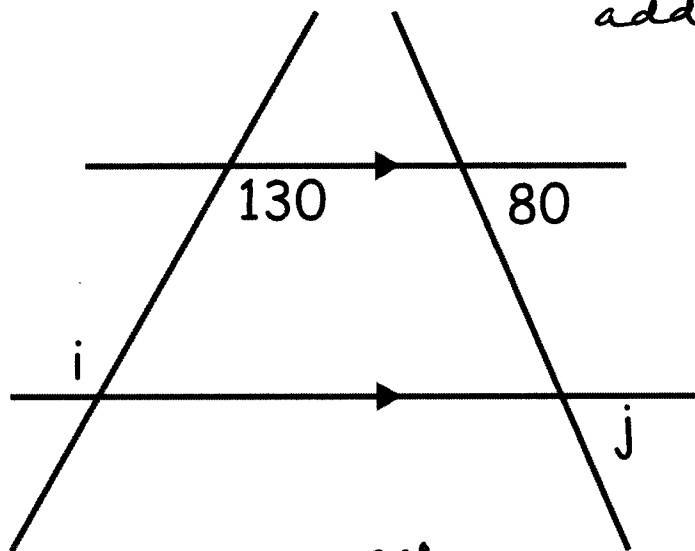
d = 150°
reason Angles on a straight line add to 180°

e = 40°
reason Angles in a triangle add to make 180°

80°
e   60° f

f = 120°
reason angles on a straight line add to make 180°

h
70   g

g = 70°
reason the triangle is isosceles.

h = 40
reason 180 - 70 - 70
angles in a triangle add to make 180°

130   80
i   j

i = 130°
reason alternate angles are equal.
j = 80°
reason corresponding angles are equal.

⑥

Calculate the missing angles

Row 1:

130 50° ?

110 70° ?

140° ? 40

120 60° ?

Row 2:

250 ? 110°

? 120 240°

200 ? 160°

320° ? 40

Row 3 (triangles):

? 70° 30° 80°

40° ? 50° 90°

70° ? 70° 40°

60° ? 80° 40°

Row 4 (crossing lines):

40° ? 40

130 ? 130°

50 ? 50°

150 ? 30°
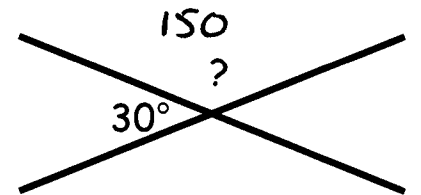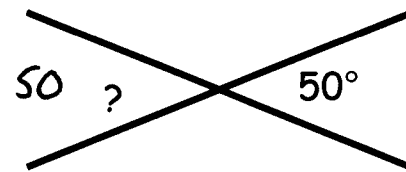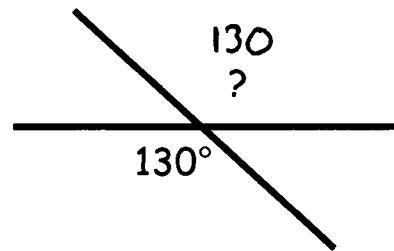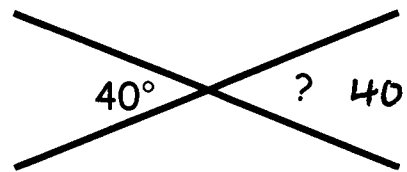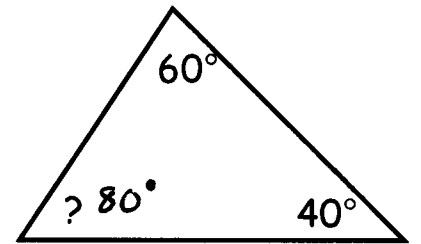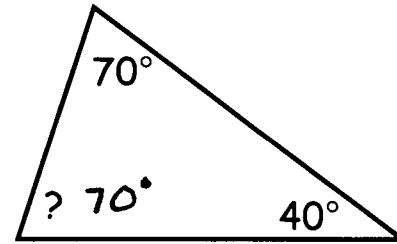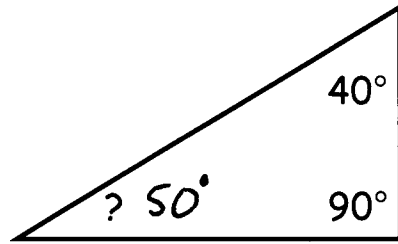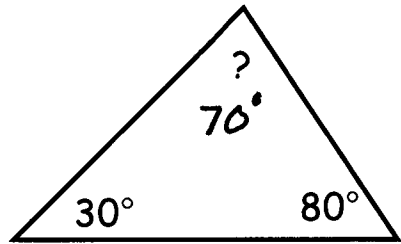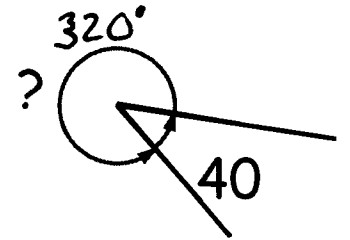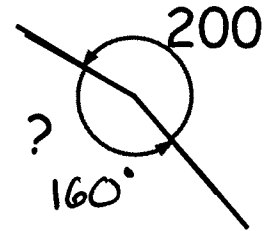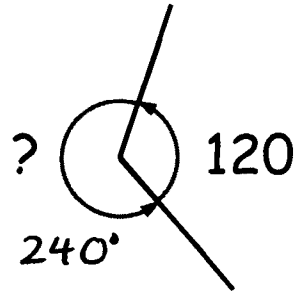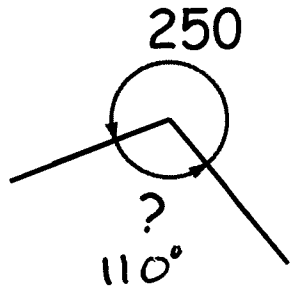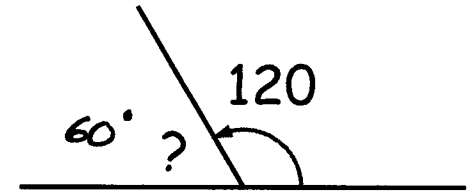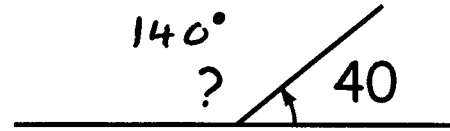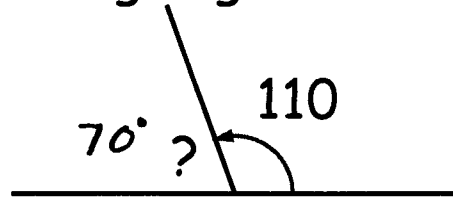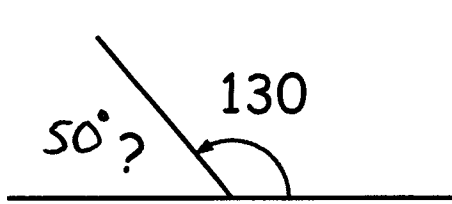
Calculate the angles a to z

s 40
t
55
p 120
60 o
65°
120°
q 60
n 70°
m
40°
100°
40 L
80°
d 20°
k 50
j 10°
30 a
b 150
c
150
30°

20°
30 r
30°
50°
30°

60
u
140°
40°
10°
i
140°
g 40°
30°

v
30
w 50

100°
100°
30°

110°
y
110°
40 z
70° x

140°
h
60°
f
70
80°
60°
e
50°

Key

angles on a straight line = 180   angles in a triangle = 180

⑧
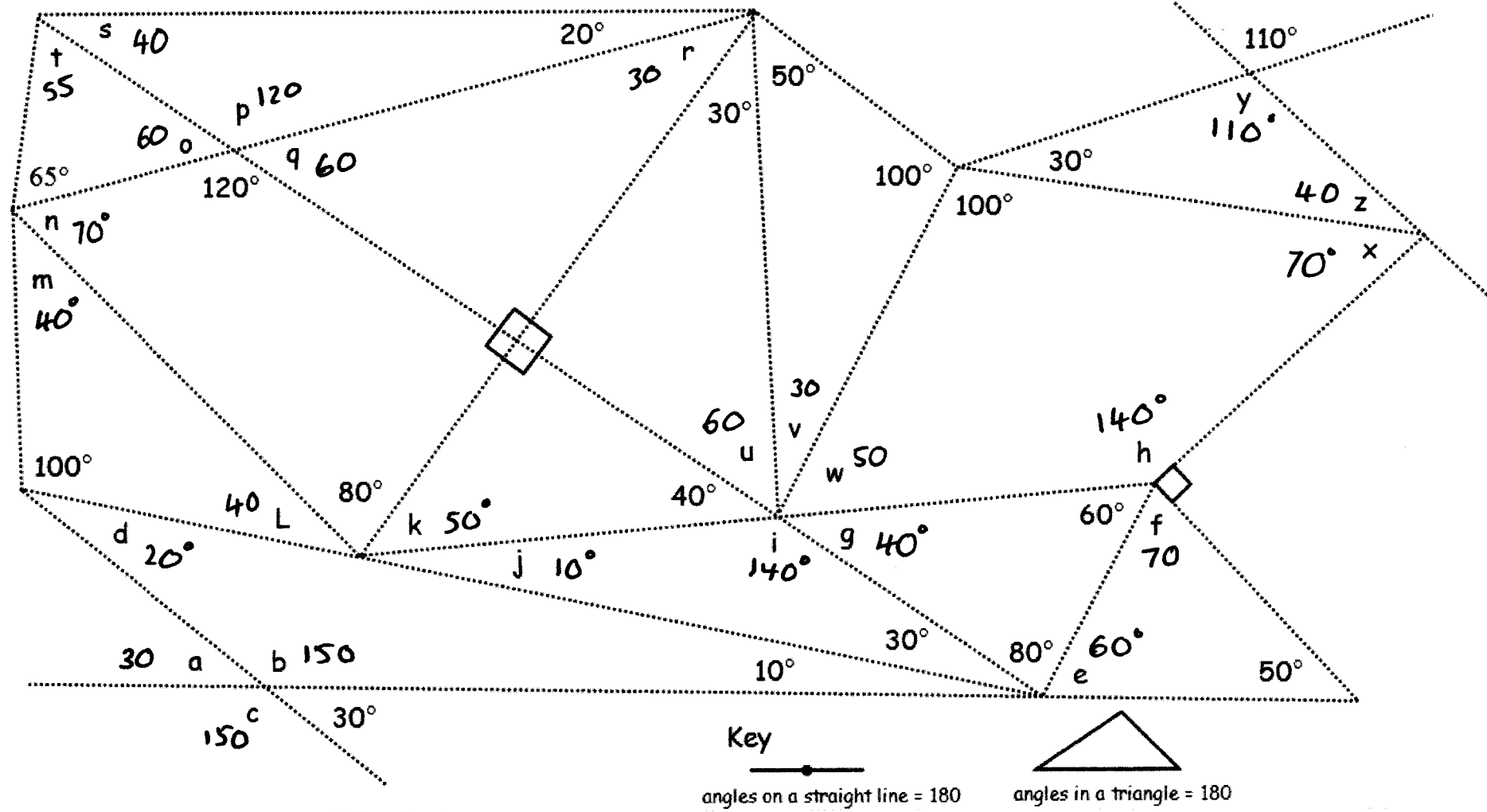
Find the missing angle giving a reason

1

72°   a

72°

alternate angles
are
equal

2

82   b

82°

Corresponding
angles are equal

3

100°

80

angles on a
straight line = 180
180 - 100 = 80

80

t

alternate
angles are
equal.

4

74°

74° e

Corresponding
angles are
equal.

⑨

5

alternate angles
are equal

Y
86
86°
86°

6

X 88° corresponding
angles are
equal

92°
88°

180 − 92 = 88
angles on a straight
line = 180

7

X
95°
alternate
angles
are
equal

50 Y
alternate
angles
are
equal

95°

50°

8

74°

b

93°

87°
180 − 93

a

a = 87° alternate angles are equal.
b = 74° alternate angles are equal.

⑩

9

alternate angles are equal

65° a

77°

115°

180-115 =65

corresponding angles are equal
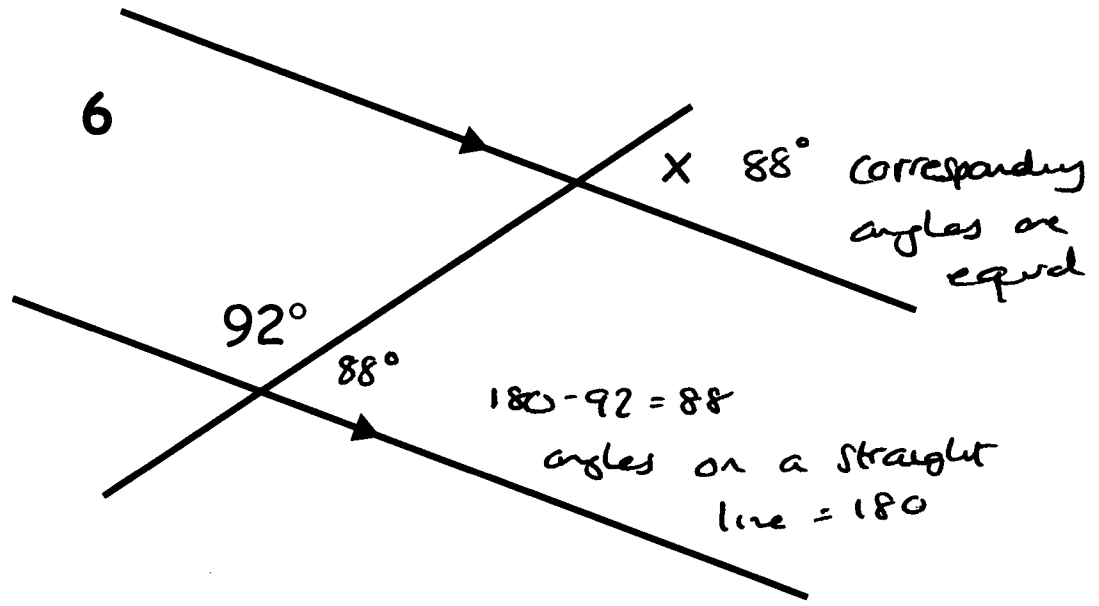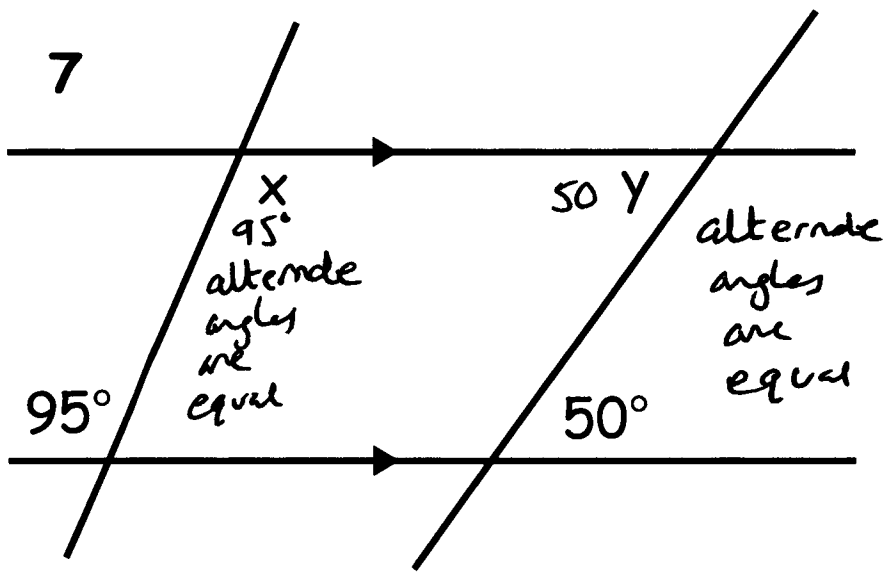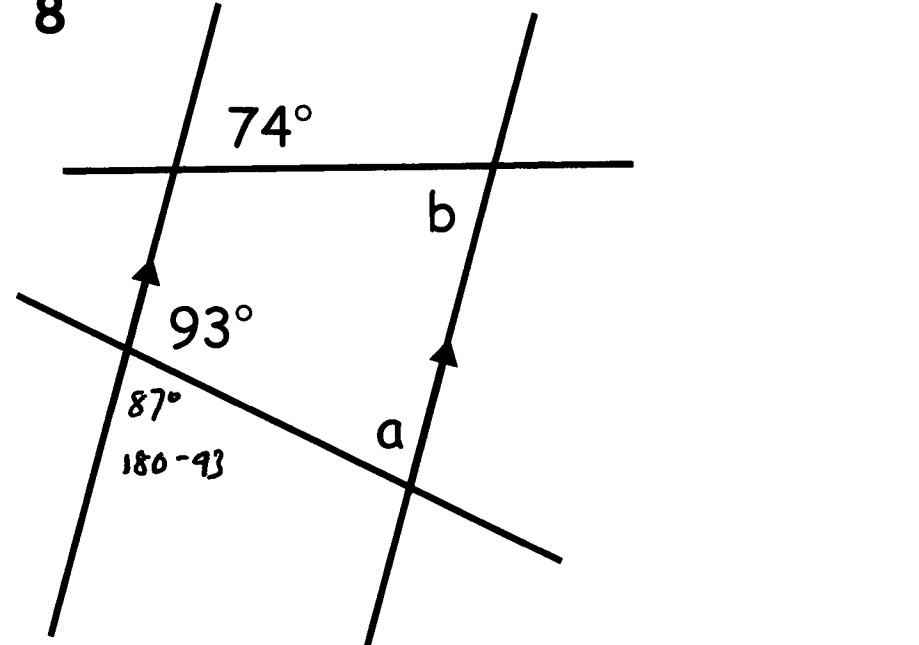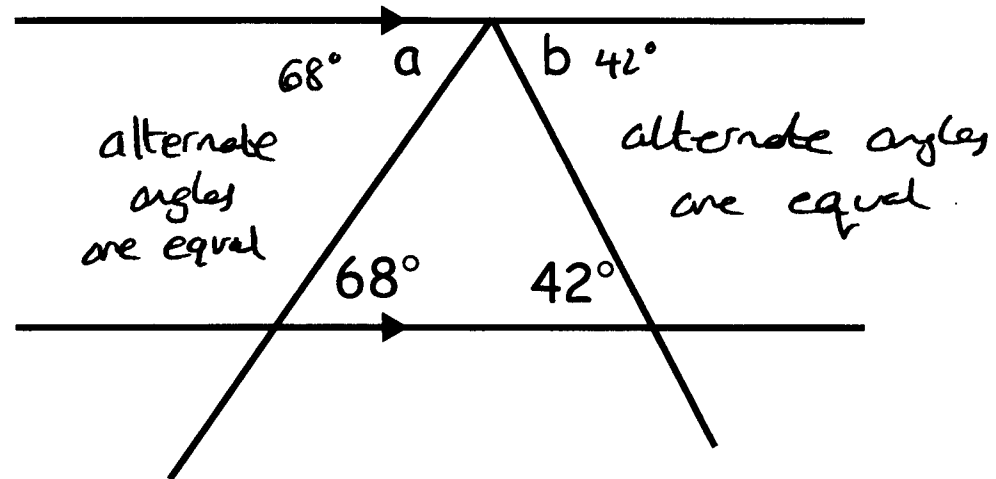
c 77°
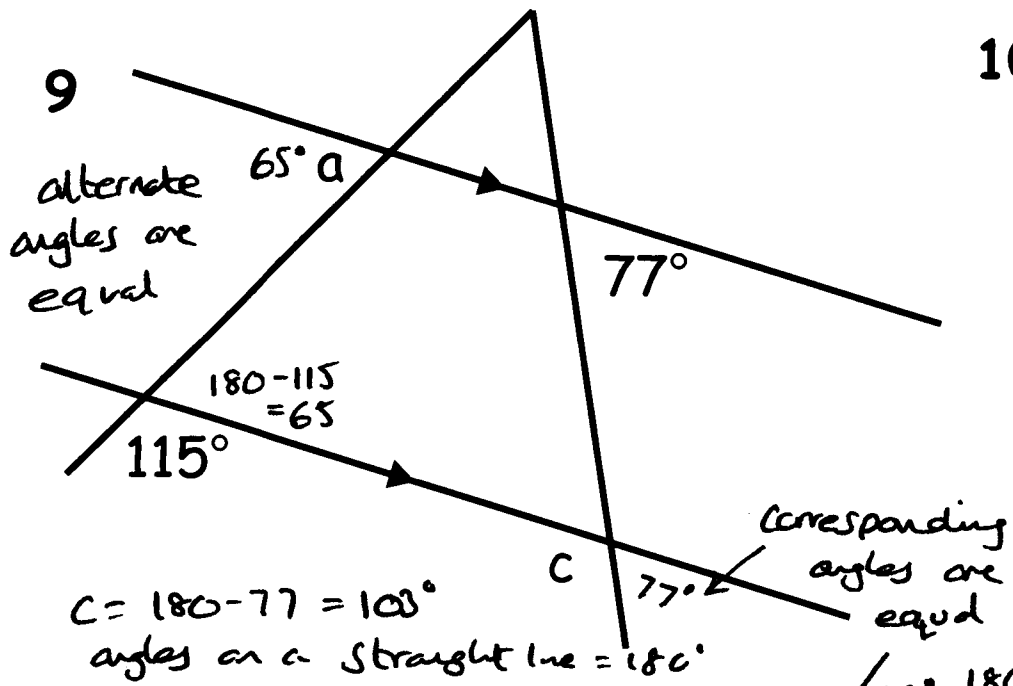
C = 180 - 77 = 103°
angles on a straight line = 180°

10

68° a   b 42°

alternate angles are equal

alternate angles are equal

68°   42°

11

50°   180-130 =50

65°   130°

65° y   z 50°

alternate angles are equal.

corresponding angles are equal.

12

C = 50°
alternate angles are equal.

50 c
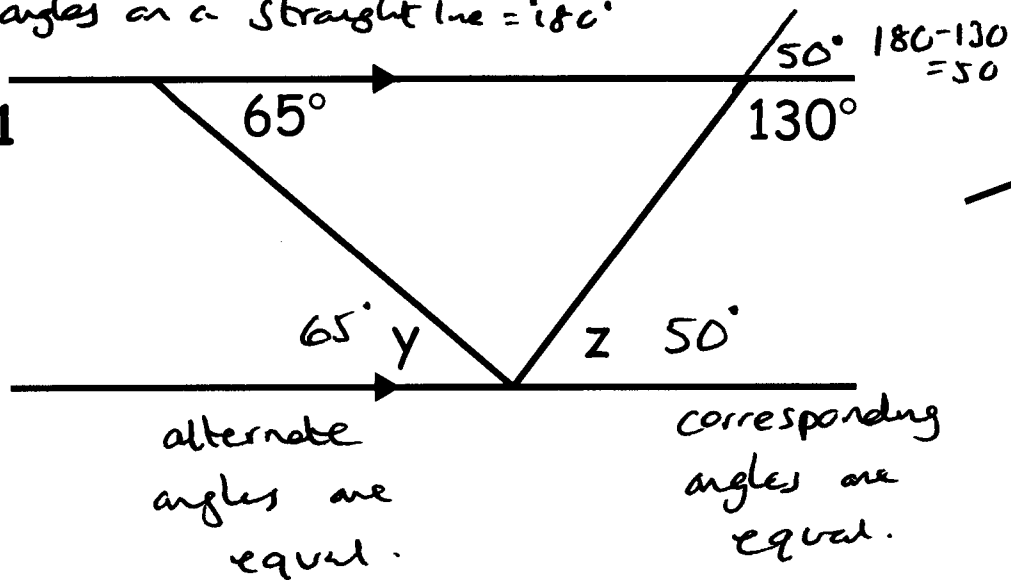
55°

125°

a = 180-125 = 55°

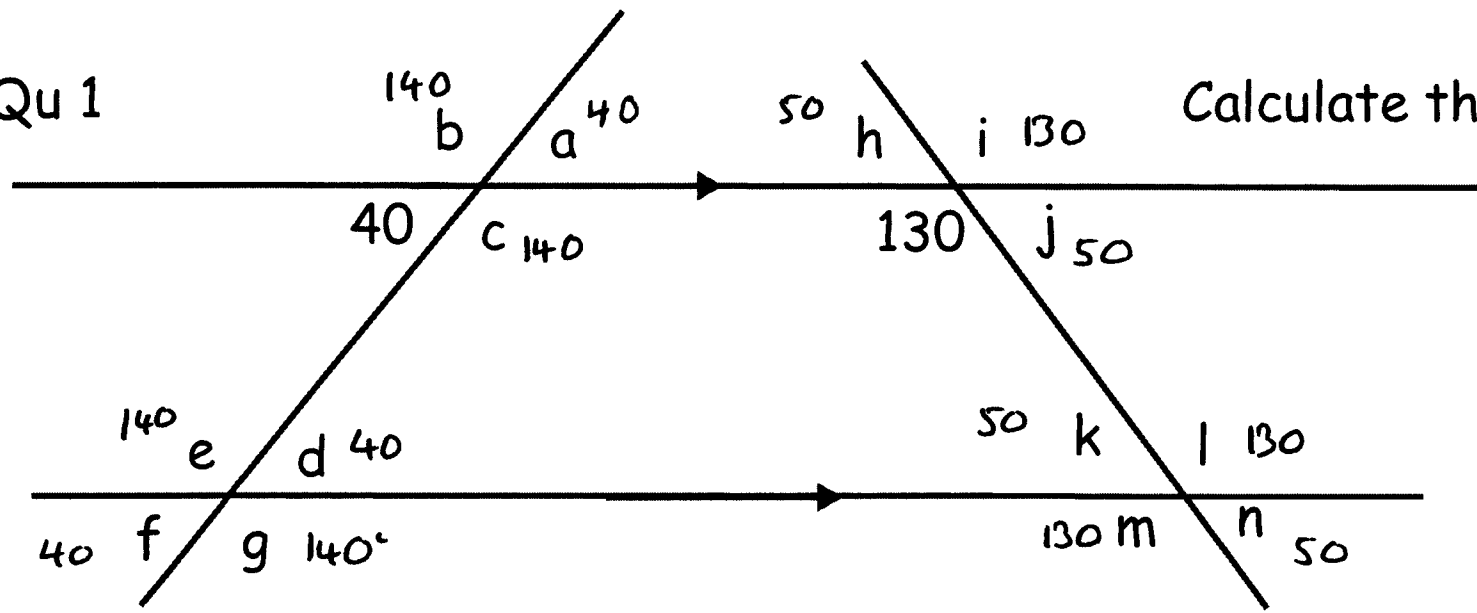a

125
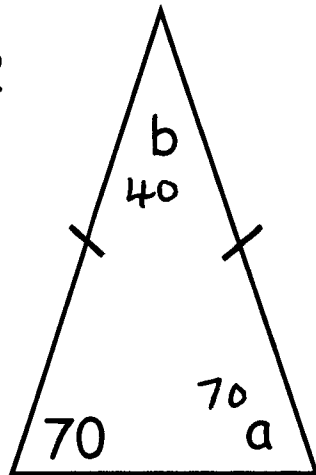
b

50°

corresponding angles are equal
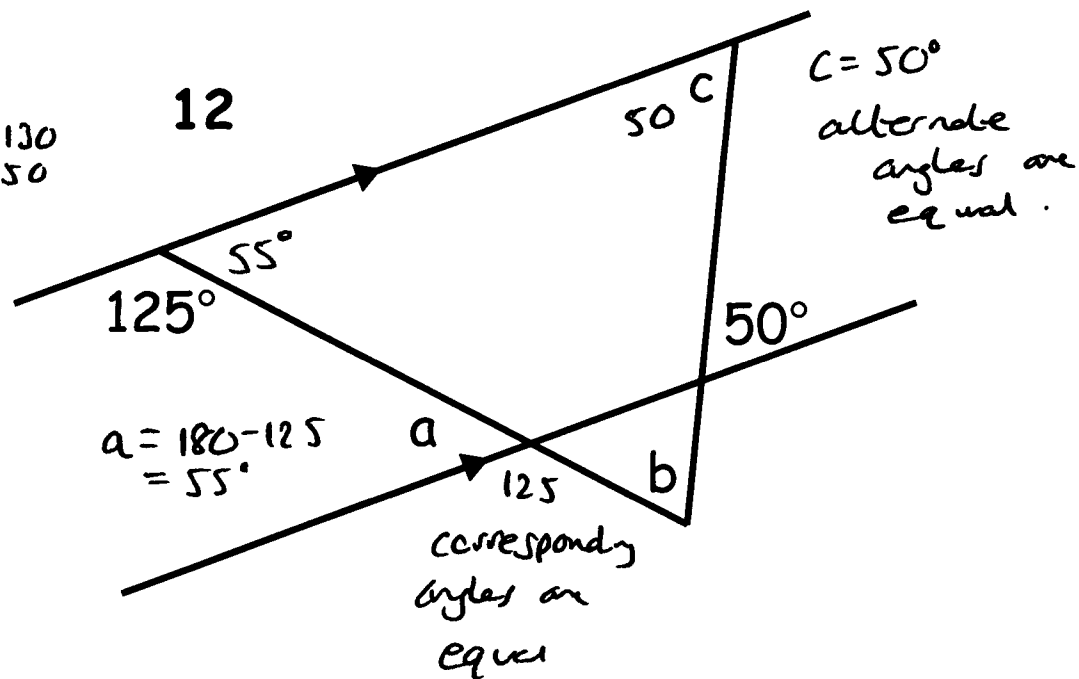
b = 180 - 55 - 50 = 75°

angles in a triangle = 180°

(11)

Qu 1

Calculate the missing angles

140 b / a 40   50 h \ i 130

40 / c 140   130 \ j 50

140 e / d 40   50 k \ l 130

40 f / g 140   130 m \ n 50

Qu 2

b
40

70
70 a

Qu 3

30

b 75   75 a

⑫

Qu 4

150°

30   a

Qu 5

100

90

b   130°

40

Qu 6

80

~~130°~~

115°

145° c

~~50~~ 35°

65• ~~35°~~ a b ~~135°~~

Qu 7

150

a

30   c 30

b

150°

⑬