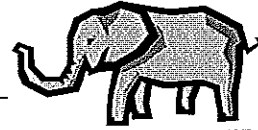
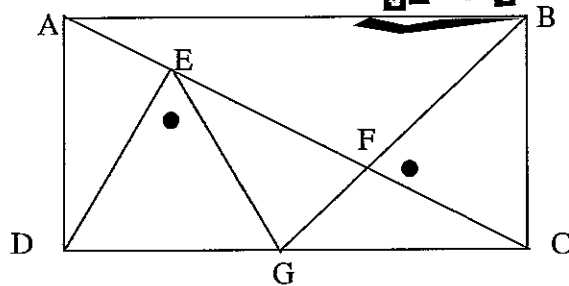


# WORKSHEET 1 ANGLES AND CONSTRUCTION - CHAPTER 3

WHAT MADE THE JUMBO SIZED TELEPHONE BILL?



1 Name the angles marked in this diagram.



2 From the diagram name 2 angles adjacent to  $\angle EGF$

3 Name the angle vertically opposite  $\angle AFB$

4 Describe the angles of the following sizes with one of the words acute, obtuse or reflex.

(a)  $123^\circ$

(b)  $23^\circ$

(c)  $223^\circ$

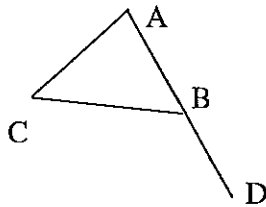
5 Complete the following statements correctly with one of the words supplementary, complementary or equal.

(a) Vertically opposite angles are ...

(b) The angles in a triangle are....

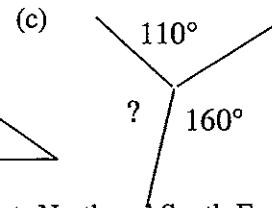
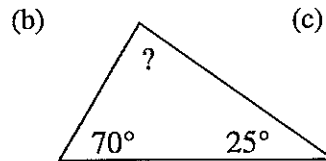
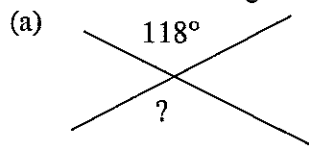
(c)  $30^\circ$  and  $60^\circ$  are .....

6 With respect to the triangle ABC, The angle LCBD is called



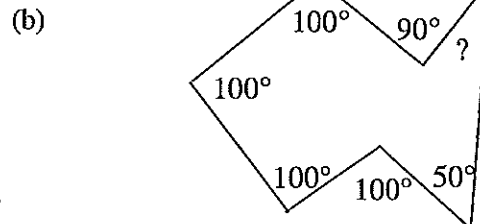
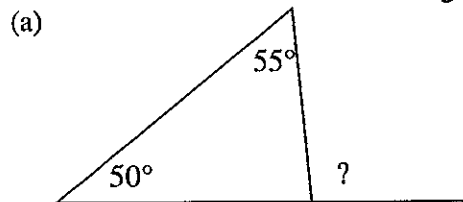
- [A] An outside angle
- [B] An inside angle
- [C] An exterior angle
- [D] An interior angle

7 Calculate the size of the angles marked "?".



8 What is the size of the smaller angle between the compass points North and South-East?

9 Calculate the size of the marked angle.



10 Using compasses and ruler, construct a circle which will pass through each of these three points.

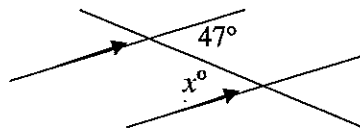


11 Using compasses and ruler, construct an equilateral triangle. (Give it any size side you like but make it nice and large). Now bisect one of the angles. What size should it be? Check the accuracy of your construction with a protractor.

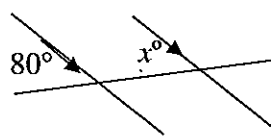
12 Using compasses and ruler, construct a rhombus which has sides of 5.5 cm and an angle of 45°

13 Calculate the value of  $x$  in the diagram.  
Give a reason for your answer.

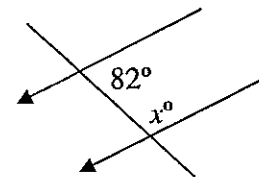
(a)



(b)

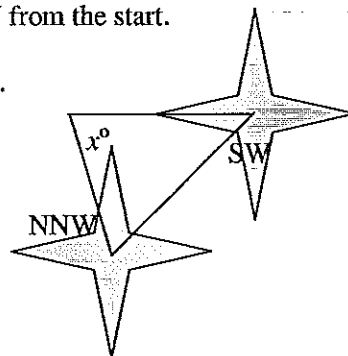


(c)



14 What is the supplement of the complement of 50°?

15 A yachting course is plotted so that the first leg is SW from the start.  
The second leg is NNW after rounding a buoy.  
The final leg is Due East back to the start. Calculate  $x$ .



Answers:

A	C	G	K	L	M	N	O	S	T	U
Obtuse	47°	135°	30°	140°	$\angle GFC$	Equal	$\angle EGD$	67.5	$\angle DEG$	○
Acute	80°					Supplementary	$\angle CGF$		$\angle BFC$	
Reflex	98°					Complementary				

1 2 2 3 4 5 6 7 2 5 8 1 9 10 5 11 13 4 14 14 15

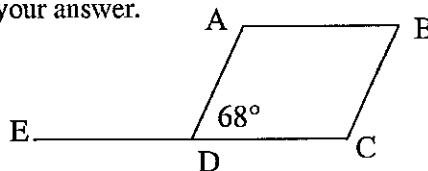
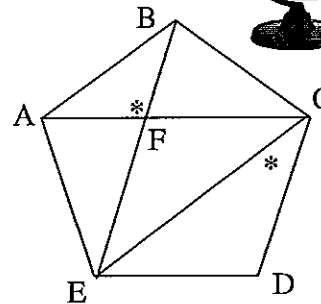
## WORKSHEET 2 ANGLES AND CONSTRUCTION - CHAPTER 3

WHAT MADE THE SAILOR SELL HIS GLOBE OF THE EARTH ?



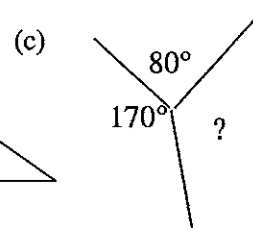
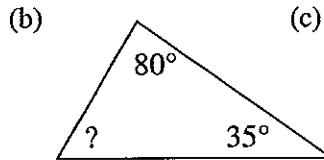
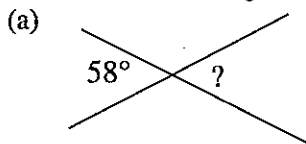
Questions 1 to 4 apply to the diagram on the right.

- 1 Name the angles marked "\*" in this diagram.
- 2 From the diagram name 2 angles adjacent to  $\angle EFC$
- 3 Name the angle vertically opposite  $\angle AFE$
- 4 Name an obtuse angle in the triangle ECD.
- 5 Find the size of  $\angle ADE$  below giving a reason to explain how you decided on your answer.



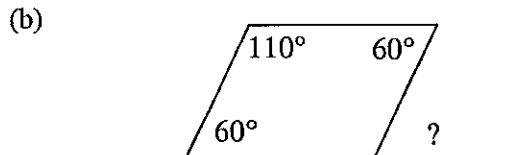
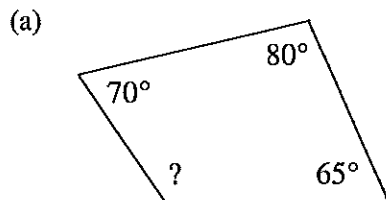
- 6 (a) What is the complement of  $50^\circ$  ?  
 (b) What is the supplement of  $50^\circ$  ?  
 (c) What size are 2 equal supplementary angles?

7 Calculate the size of the angles marked "?".

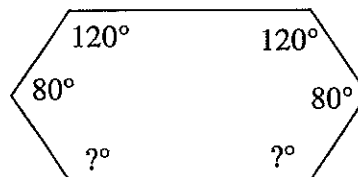


8 What is the size of the smaller angle between the compass points South and South-West?

9 Calculate the size of the marked angle.

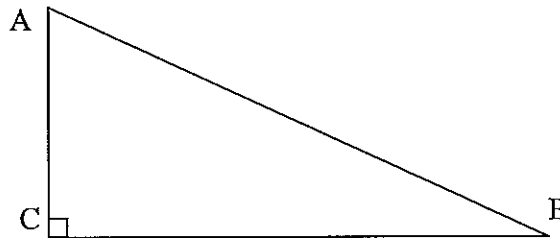


(c) The figure is symmetrical so both of the unknown angles are equal.



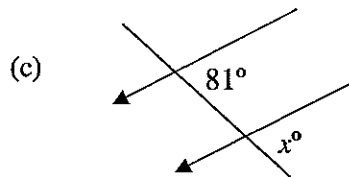
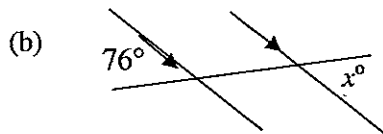
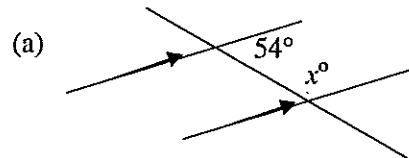
10 What is the angle sum of a Dodecagon (12 sides)?

11 Copy this diagram into your book. Using compasses and ruler, construct the perpendicular from the side AB through the vertex C. Let the point where this perpendicular meet AB be D. Measure all three angles in the triangles ACD and BCD. State True or False: "The triangles contain the same angles"



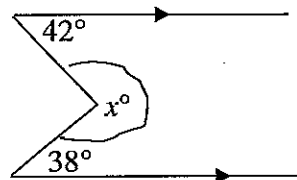
12 Construct a triangle with one side 3 cm in length, another side 6 cm in length and the angle between them being  $60^\circ$ . Measure the length of the third side.

13 Calculate the value of  $x$  in the diagram.  
Give a reason for your answer.



14 What is the complement of the supplement of  $150^\circ$ ?

15. Calculate  $x$ .



Answers:

H	L	D	A	G	O	N	R	!	I	S
$\angle EDC$	$58^\circ$ $65^\circ$ $110^\circ$	$\angle BFC$ $\angle AFE$	$\angle AFB$ $\angle ECD$	$112^\circ$	$160^\circ$	$45^\circ$	$1800^\circ$	$126^\circ$ $76^\circ$ $81^\circ$	$40^\circ$ $130^\circ$ $90^\circ$	True

U	T	W	E
$280^\circ$	5.2 cm	$60^\circ$	$\angle BFC$

## WORKSHEET 3 ANGLES AND CONSTRUCTION - CHAPTER 3

WHY DID THE FROG STUDY SO HARD?



1 Name the angles marked in this diagram.

2 From the diagram name 2 angles adjacent to  $\angle BEC$

3 Name the angle vertically opposite  $\angle AEB$

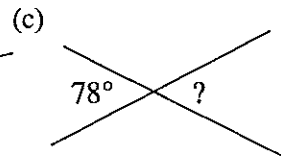
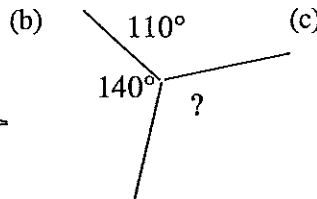
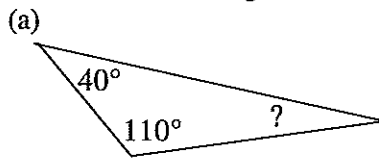
4 From the diagram, state the type of angle named (acute, obtuse)

- (a)  $\angle EAD$                       (b)  $\angle CED$                       (c)  $\angle ABC$

5 Give a brief reason for the fact that  $\angle BEC = \angle AED$

6 What is the size of the smaller angle between the compass directions SE and W?

7 Calculate the size of the angles marked "?".

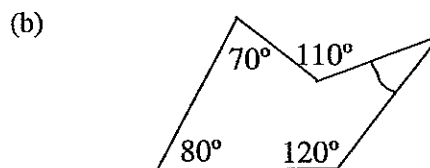


8 (a) What is the supplement of  $125^\circ$ ?

(b) What is the complement of  $25^\circ$ ?

9 Calculate the size of the marked angle.

(a)



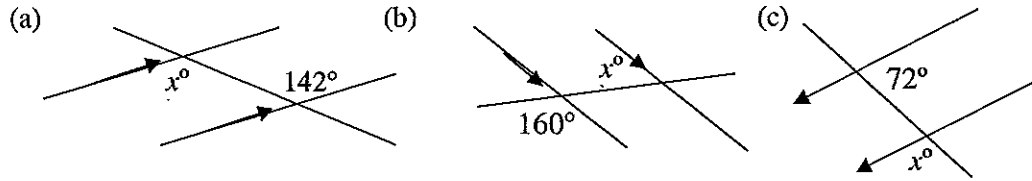
10 Calculate the angle sum of the following polygons:

- (a) Octagon                      (b) Decagon                      (c) Dodecagon

11 An instruction in a geometry task says to construct with a ruler and compasses, a triangle with sides of length 3cm, 5 cm and 9 cm. What error is immediately obvious in this instruction?

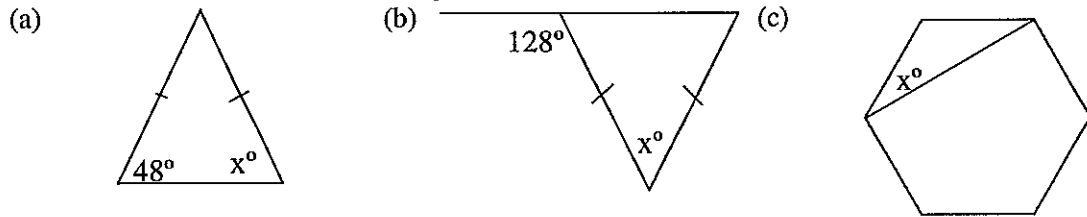
12 Draw any triangle with a nice large diagram in your book. Using compasses and a ruler, bisect any two of the angles. Produce the bisectors until they meet. How can you bisect the third angle without using your compasses?

13 Calculate the value of  $x$  in the diagram.



Give a reason for your answer.

14 Calculate the value of  $x$  in the diagram.



Give a reason for your answer.

Regular Hexagon

Answers:

A	D	E	H	J	M	N	O	P	S
One side is too long.	$1080^\circ$	$61^\circ$	142	$30^\circ$	$\angle DEC$	Vertically Opposite Angles	$\angle AED$	$55^\circ$	$\angle DEC$
	$1440^\circ$	$20^\circ$	20	$110^\circ$			$\angle ACD$	$65^\circ$	$\angle AFB$
	$1800^\circ$		108	$78^\circ$					

U	W	Y	T
Acute	48	$135^\circ$	Join intersection point to third vertex.
Obtuse	76		
Obtuse	30		

$\overline{13\ 9} \quad \overline{14\ 11\ 5} \quad \overline{12\ 9\ 10} \quad \overline{12\ 1} \quad \overline{2} \quad \overline{12\ 11} \quad \overline{6}$

$\overline{1\ 5\ 9} \quad \overline{7\ 4\ 3\ 8} \quad \overline{11\ 13\ 9\ 11\ 10}$