



GRADE 9



INVESTIGATION  
ANGLES PAIRS ON PARALLEL LINES

1.1 In the following five diagrams,  $l$  and  $m$  are two lines. The other labels refer to angles. In each diagram measure the angles marked and answer the related questions in the table below.

<p>a.</p>	<p>b.</p>	<p>c.</p>
<p>d.</p>	<p>e.</p>	

[20]

1.2 Complete the table.

Diagram	Are the lines $l$ and $m$ parallel?	Are the corresponding angles $a$ and $e$ equal?	Are the alternate angles $c$ and $f$ equal?	Are the co-interior angles $d$ and $f$ equal? If not, are they supplementary?	
				Equal	Supplementary
a					
b					
c					
d					
e					

[20]

1.3 From the investigation you should have discovered some important facts about special angles pairs.

When <b>parallel lines</b> are cut by a <b>transversal</b> :	
1.3.1	Corresponding angles
1.3.2	Alternate angles
1.3.3	Co-interior angles
1.3.4	Vertically opposite angles

(1)

(1)

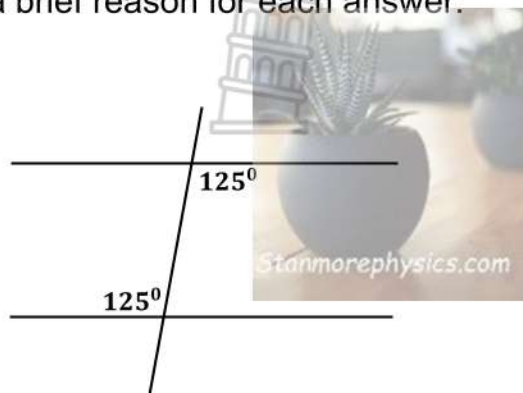
(2)

(1)

[5]

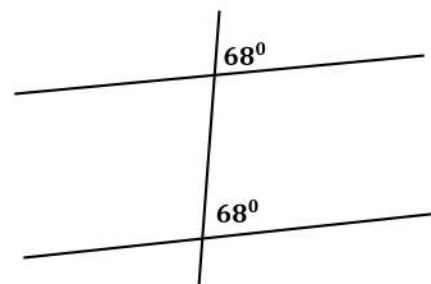
1.4 The following figures are not drawn to scale. Does each figure contain a pair of parallel lines? Give a brief reason for each answer.

1.4.1



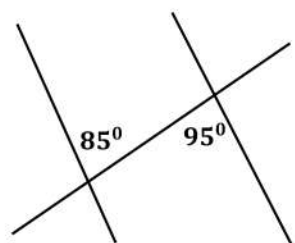

(1)

1.4.2



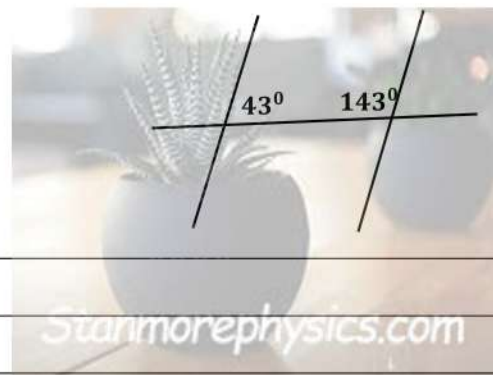

(1)

1.4.3




(1)

1.4.4

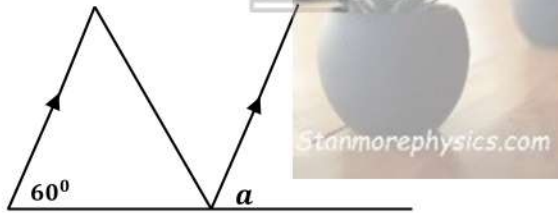



(1)

[4]

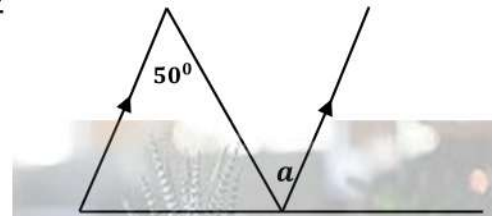
1.5 Find the value of the unknown, giving a brief reason for your answer:

1.5.1



Statement	Reason

1.5.2

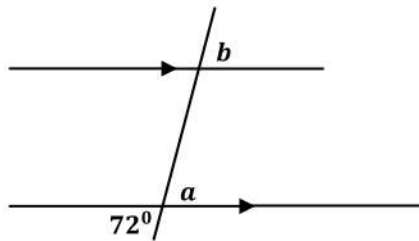


Statement	Reason

(2)

(2)

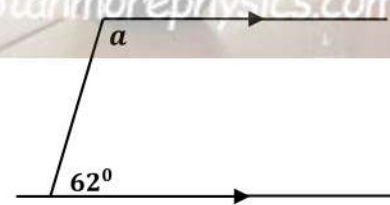
1.5.3



Statement	Reason

(4)

1.5.4



Statement	Reason

(3)

[11]

**TOTAL:**

**60**



GRADE 9

INVESTIGATION MEMOR

ANGLES PAIRS ON PARALLEL LINES

1.1 In the following five diagrams,  $l$  and  $m$  are two lines. The other labels refer to angles. In each diagram measure the angles marked and answer the related questions in the table below.

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<p>a.</p>	<p>b.</p>	<p>c.</p>
<p>d.</p>	<p>e.</p>	

[20]

1.2 Complete the table.

Diagram	Are the lines $l$ and $m$ parallel?	Are the corresponding angles $a$ and $e$ equal?	Are the alternate angles $c$ and $f$ equal?	Are the co-interior angles $d$ and $f$ equal? If not, are they supplementary?	
				Equal	Supplementary
a	Yes	Yes ✓	Yes	Yes ✓	$110^0 + 70^0 = 180^0$ ✓✓
b	No	No ✓	No	No ✓	$37^0 + 125^0 \neq 180^0$ ✓✓
c	Yes	Yes ✓	Yes	Yes ✓	$64^0 + 116^0 = 180^0$ ✓✓
d	Yes	Yes ✓	Yes	Yes ✓	$84^0 + 96^0 = 180^0$ ✓✓
e	No	No ✓	No	No ✓	$84^0 + 113^0 \neq 180^0$ ✓✓

[20]

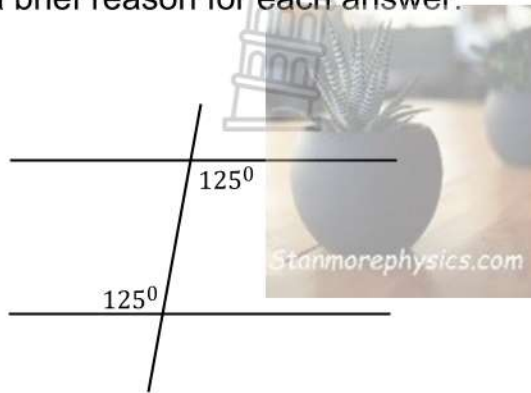
1.3 From the investigation you should have discovered some important facts about special angles pairs.

When <b>parallel lines</b> are cut by a <b>transversal</b> :			
1.3.1	Corresponding angles	Equal ✓	(1)
1.3.2	Alternate angles	Equal ✓	(1)
1.3.3	Co-interior angles	Add up to $180^0$ or are supplementary ✓✓	(2)
1.3.4	Vertically opposite angles	Equal ✓	(1)

[5]

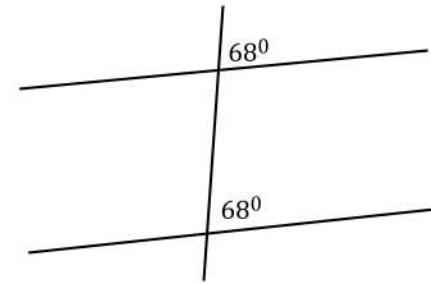
1.4 The following figures are not drawn to scale. Does each figure contain a pair of parallel lines? Give a brief reason for each answer.

1.4.1



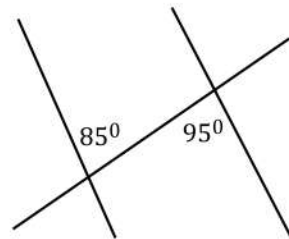
Yes
Alternate angles are equal ✓

1.4.2



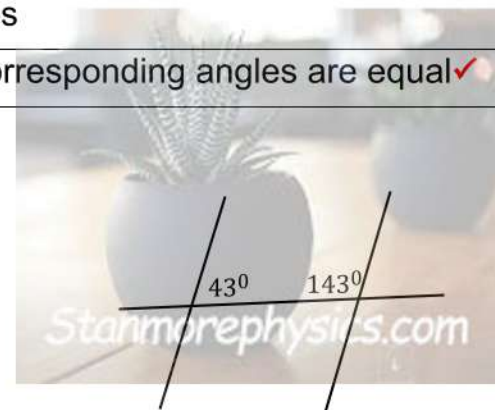
Yes
Corresponding angles are equal ✓

1.4.3



No
Alternate angles are NOT equal ✓

1.4.4



No
Co-interior angles are NOT supplementary/ NOT add up to $180^{\circ}$ ✓

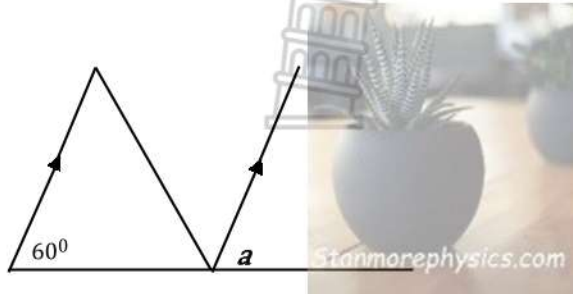
(1)

(1)

[4]

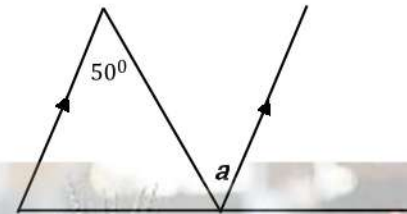
1.5 Find the value of the unknown, giving a brief reason for your answer:

1.5.1



Statement	Reason
$a = 60^\circ$ ✓	Corr. $\angle$ s,    lines ✓

1.5.2

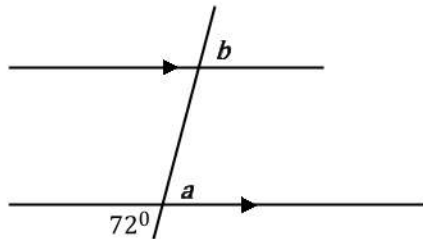


(2)

Statement	Reason
$a = 50^\circ$ ✓	Alt $\angle$ s,    lines ✓

(2)

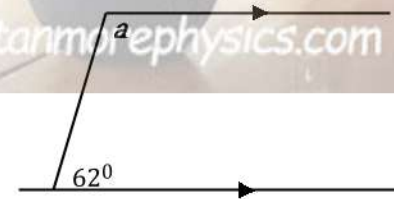
1.5.3



Statement	Reason
$a = 72^\circ$ ✓	Vert. opp. angles ✓
$b = a = 72^\circ$ ✓	Corr $\angle$ s,    lines ✓

(4)

1.5.4



Statement	Reason
$a = 180^\circ - 62^\circ$ ✓	Co-int $\angle$ s,    lines ✓
$= 118^\circ$ ✓	

(3)

[11]

**TOTAL:**

**60**

RUBRIC

1.1 Measurement of angles

Diagram	1 marks	2 marks	3 marks	4 marks	Total marks
<i>a</i>	1 - 2 angles correctly measured	2 - 3 angles correctly measured	3 - 4 angles correctly measured	4 - 5 angles correctly measured	
<i>b</i>	1 - 2 angles correctly measured	2 - 3 angles correctly measured	3 - 4 angles correctly measured	4 - 5 angles correctly measured	
<i>c</i>	1 - 2 angles correctly measured	2 - 3 angles correctly measured	3 - 4 angles correctly measured	4 - 5 angles correctly measured	
<i>d</i>	1 - 2 angles correctly measured	2 - 3 angles correctly measured	3 - 4 angles correctly measured	4 - 5 angles correctly measured	
<i>e</i>	1 - 2 angles correctly measured	2 - 3 angles correctly measured	3 - 4 angles correctly measured	4 - 5 angles correctly measured	
				Total Marks	