Name:

Exam Style Questions

Angles: Parallel Lines

Corbettmaths

Equipment needed: Pen, Calculator

Guidance

1. Read each question carefully before you begin answering it.
2. Check your answers seem right.
3. Always show your workings

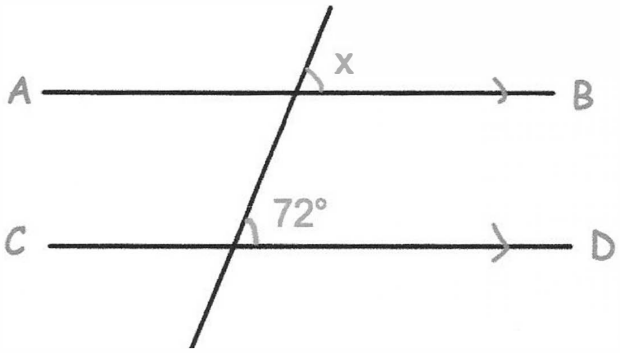
Video Tutorial

www.corbettmaths.com/contents

Video 25

Answers and Video Solutions

1. In the diagram, AB is parallel to CD.



(a) Work out the size of the angle marked x.

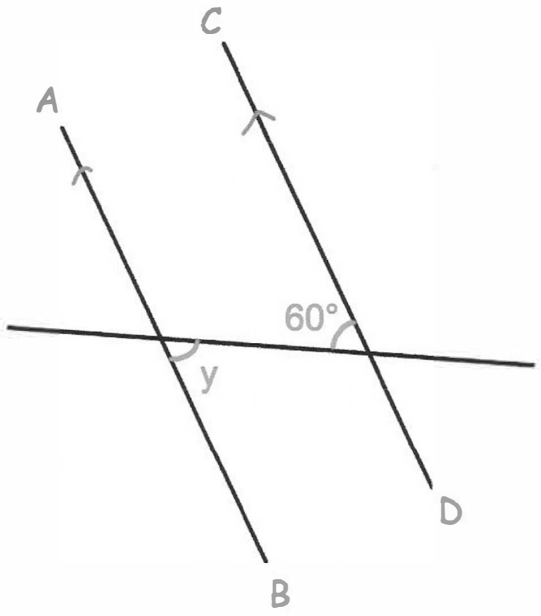
72 °

(b) Give a reason for your answer.

Corresponding angles are equal

(2)

2. AB is parallel to CD.



(a) Work out the size of the angle marked y.

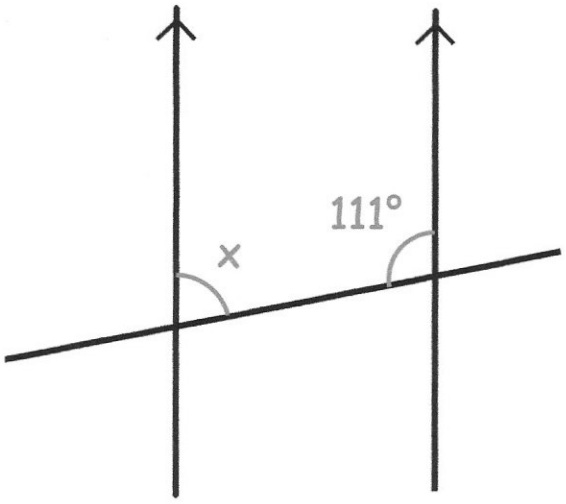
60 °

(b) Give a reason for your answer.

Alternate angles are equal

(2)

3.



180 - 111 = 69°

(a) Work out the size of the angle marked x.

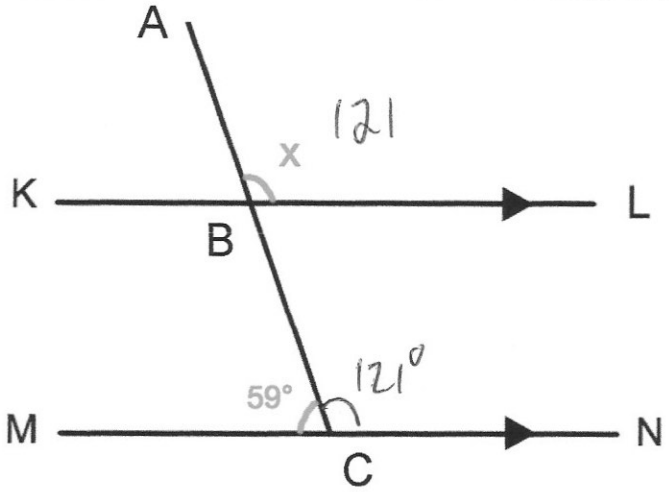
69 °

(b) Give a reason for your answer.

Co-interior angles add to 180°

(2)

4.



(a) Work out the size of the angle marked x.

121 °

(b) Give reasons for your answer.

∠ACN = 121° vs angles in a straight line add to 180°

∠ABL = ∠ACN vs corresponding angles are equal.

(3)

5. In the diagram AB is parallel to CD.

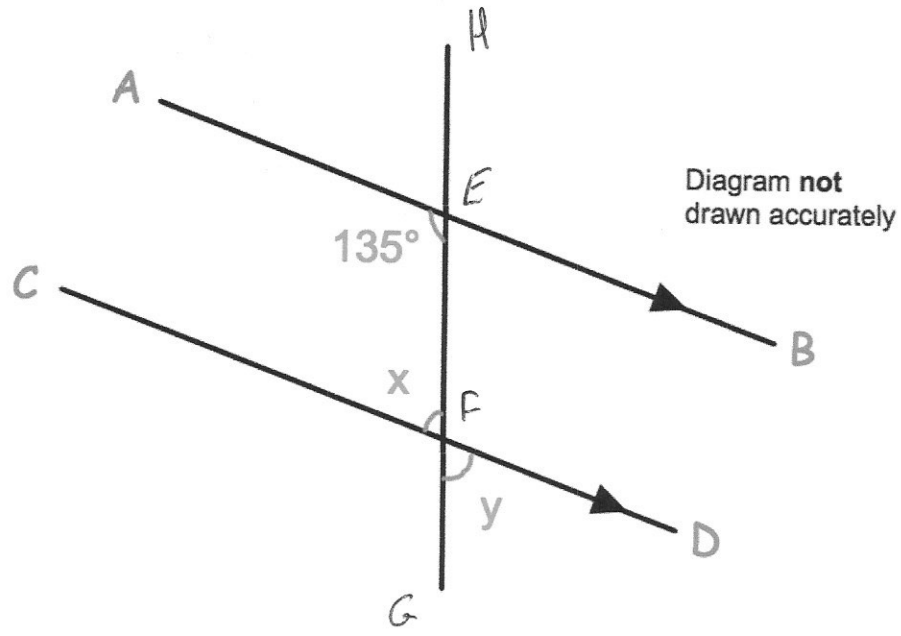


Diagram **not** drawn accurately

(a) Work out the size of the angle marked x.

45 °

Give a reason for your answer.

Co-interior angles add to 180°
∠AEF & ∠CFE add to 180°.

(2)

(b) Write down the value of y.

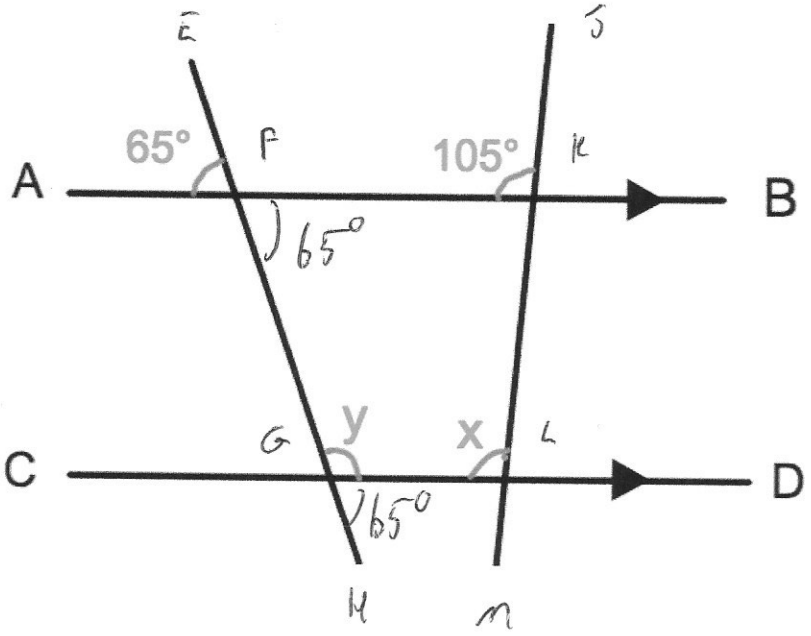
45 °

Give a reason for your answer.

Vertically opposite angles are equal.
∠CFE & ∠DFG are vertically opposite, so equal.

(2)

6.



AB is parallel to CD.

(a) Work out the size of the angle marked x.

105 .....°

Give a reason for your answer.

Corresponding angles are equal

∠JKA = ∠JLC as they are corresponding

(2)

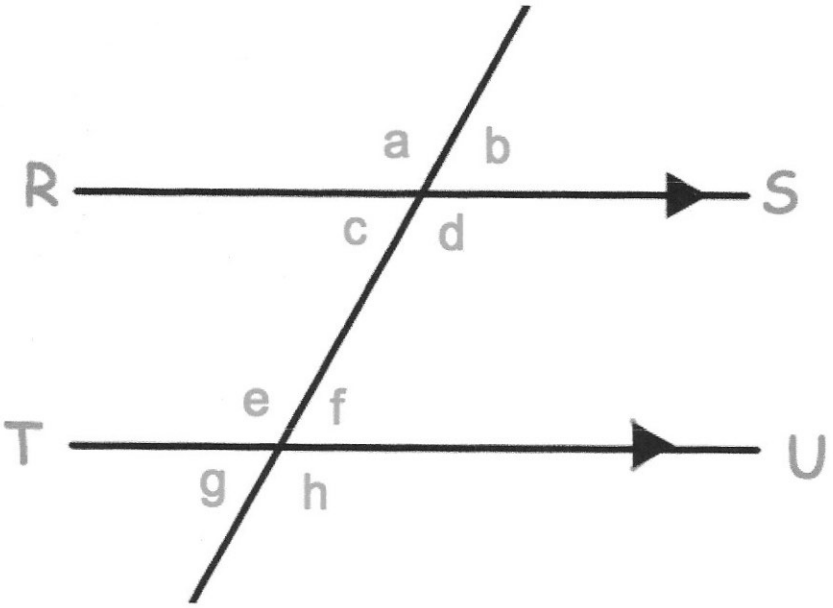
(b) Work out the size of the angle marked y.

180 - 65

115 .....°

(2)

7. On the diagram RS is parallel to TU.



(a) Which angle is vertically opposite to angle g ?

f

(1)

(b) Which angle is corresponding to angle a ?

e

(1)

(c) Which angle is alternate to angle c ?

f

(1)

(d) Which angle is corresponding to angle h ?

d

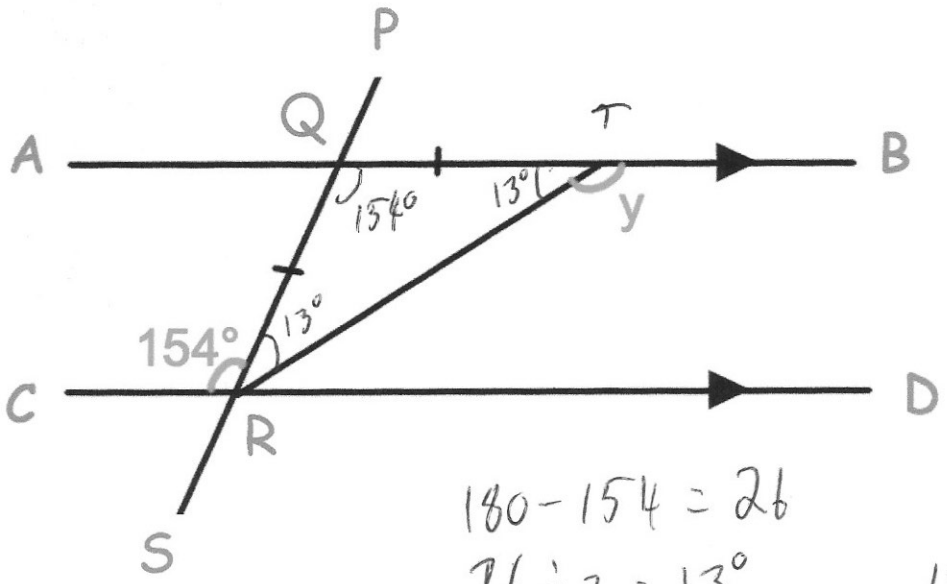
(1)

(e) Which angle is alternate to angle d ?

e

(1)

8. AB is parallel to CD.



180 − 154 = 26
26 ÷ 2 = 13°

180 − 13 = 167

Work out the size of angle y.
Give reasons for your answer.

∠RQB = 154° Alternate to ∠QRC

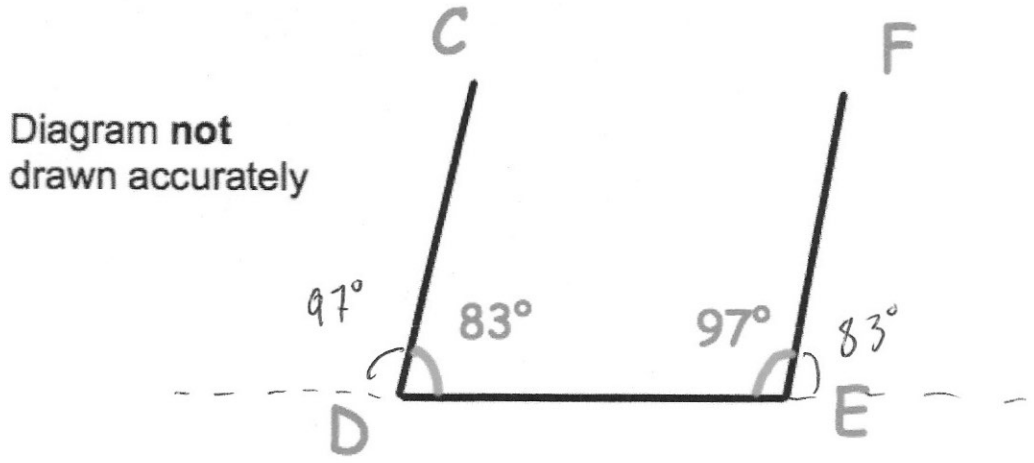
∠QTR = 13° ΔQTR is isosceles

∠RTB = 167° Angles in a straight line add to 180°.

167 °

(4)

9.



Nigel says "the lines CD and EF are parallel."
Tim says "the lines CD and EF are **not** parallel."

Who is correct?

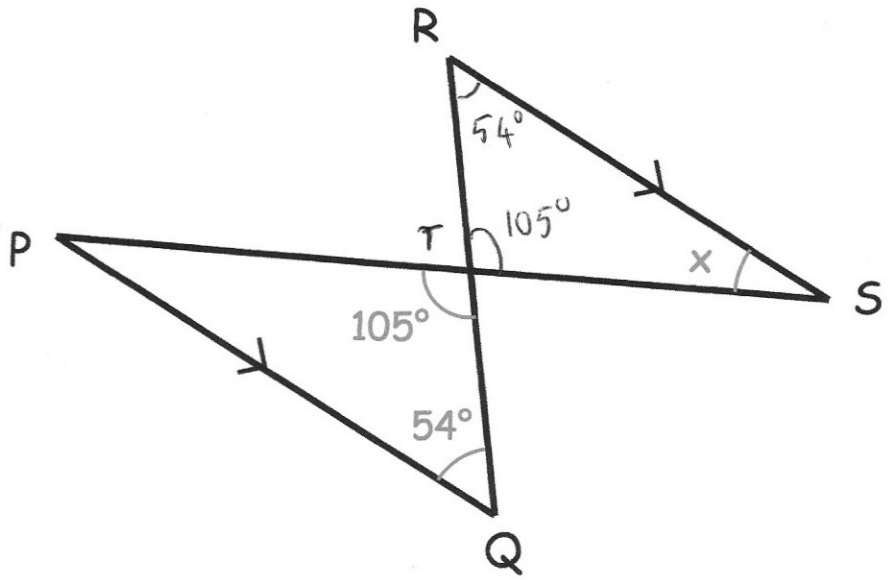
Nigel

Give a reason for your answer.

Both lines CD & EF make the same angles (corresponding) to the horizontal line, therefore will be parallel.

(2)

10. The lines PQ and RS are parallel.



Work out the value of x.

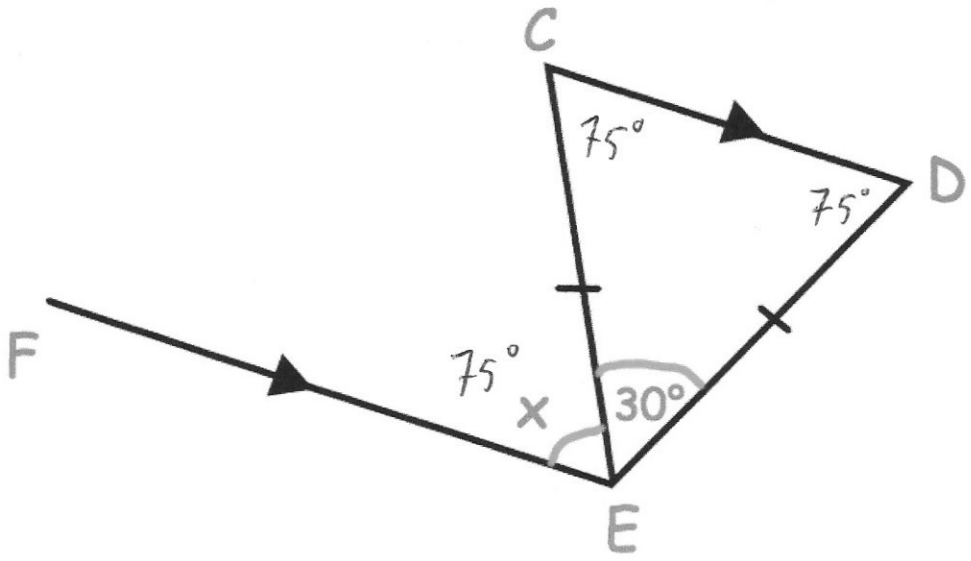
$105 + 54 = 159$

$180 - 159 = 21°$

21° .....°

(3)

11.



Triangle CDE is isosceles.
CD is parallel to FE.
Angle CED = 30°

Work out the size of angle x.

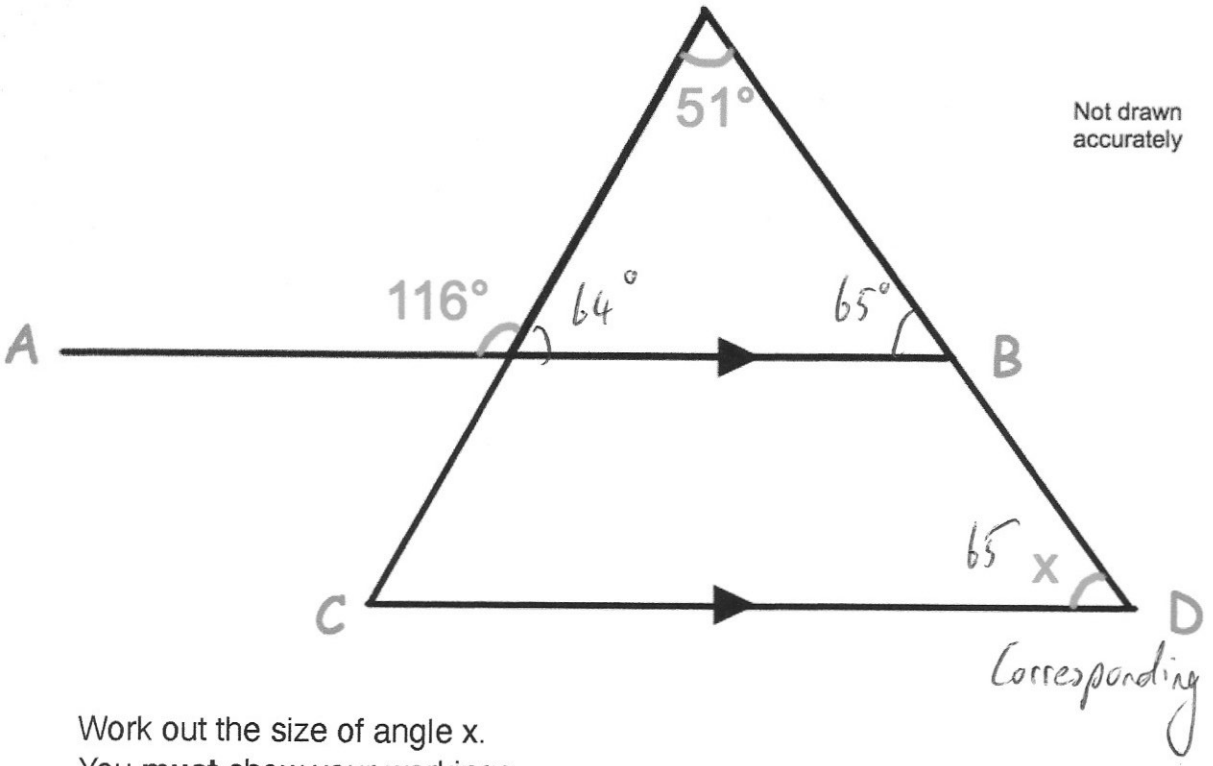
$180 - 30 = 150$

$150 \div 2 = 75°$

75 .....°

(3)

12. In the diagram, AB is parallel to CD.



Work out the size of angle x.
You **must** show your workings.

$180 - 116 = 64°$

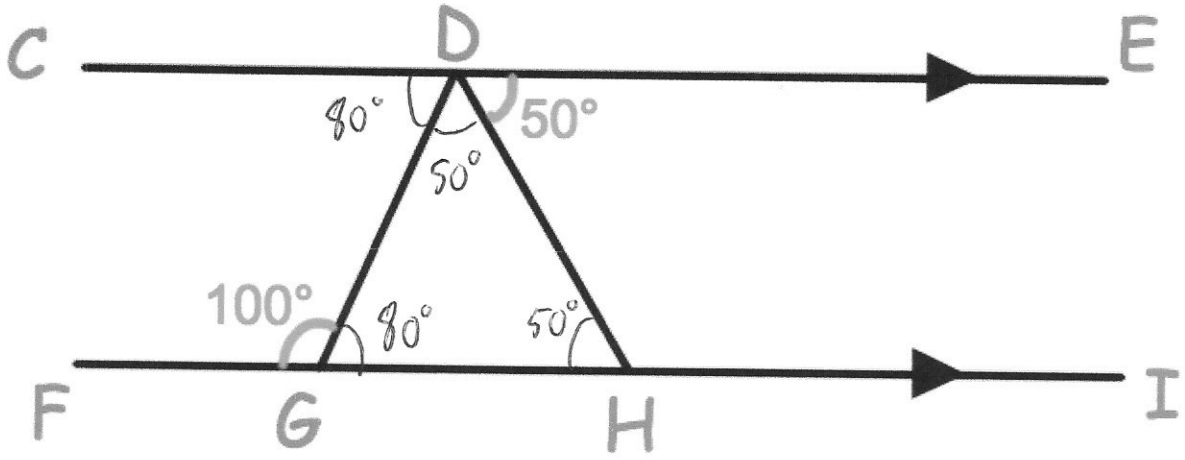
$51 + 64 = 115°$

$180 - 115 = 65$

65 .....°

(4)

13. CE and FI are parallel lines.
Angle EDH = 50°
Angle DGF = 100°



Show, giving reasons, that triangle DGH is isosceles.

$\angle DGH = 80°$ (straight line - angles add to 180°)

$\angle DHG = 50°$ (alternate with angle HDE)

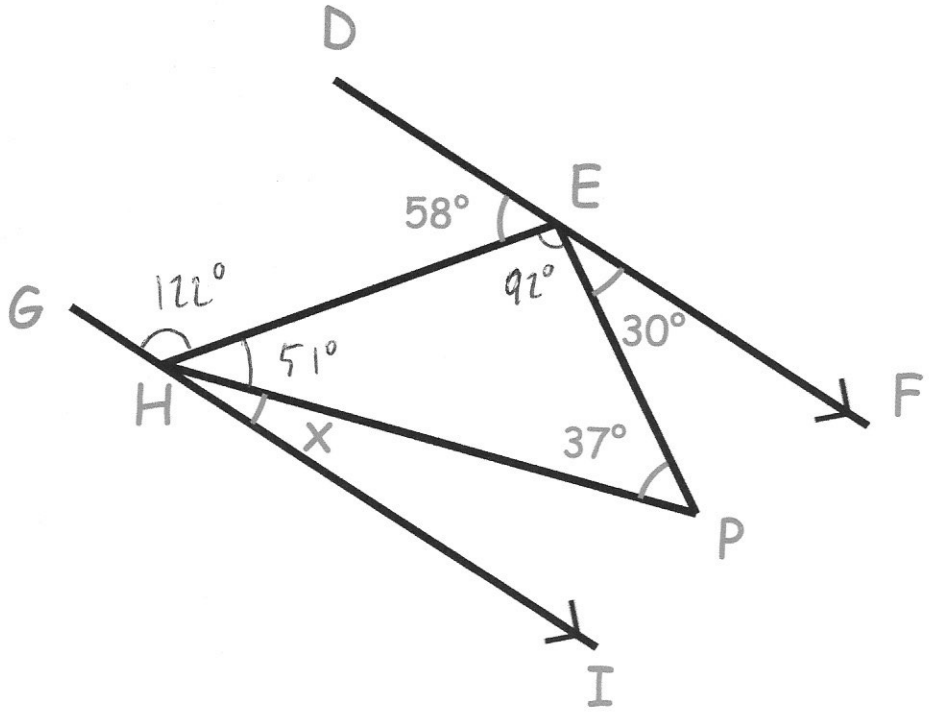
$\angle CDG = 80°$ (corresponding angles add to 180°, with $\angle FGD$)

$\angle GDH = 50°$ either angles in a triangle add to 180° or angles in a straight line add to 180°.

As two angles are equal, $\triangle DGH$ is isosceles.

(4)

14. The lines DEF and GHI are parallel



Work out the size of angle IHP.
Give a reason for each stage of your working.

58 + 30 = 88
180 − 88 = 92°

∠HEP = 92° angles in a straight line add to 180°

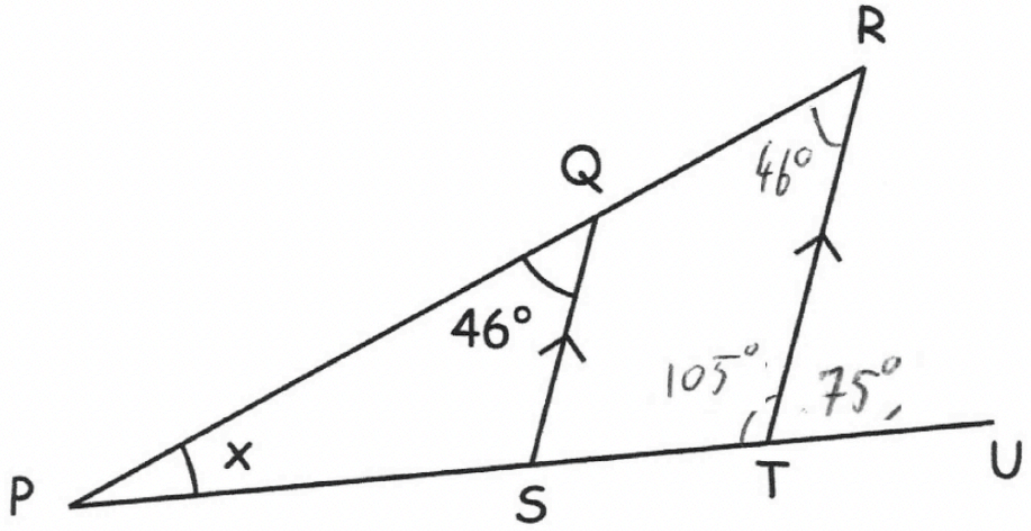
∠EHP = 51° angles in a triangle add to 180°
37 + 92 = 129°
180 − 129 = 51°

∠EHG = 122° co-interior with ∠DEH they add to 180°. 180 − 58 = 122°

∠IHP = 7° angles in a straight line add to 180°
122 + 51 = 173
180 − 173 = 7°

(4)

15. PQR and PSTU are straight lines.



Angle RTS : Angle RTU = 7 : 5

Work out the size of angle RPU
Give reasons for your answer.

$\angle PQS = \angle PRT = 46°$

They are corresponding angles.

$7 + 5 = 12$ $\angle RTS$ & $\angle RTU$ form a straight line, so add to 180°.

$180 \div 12 = 15$

$15 \times 7 = 105°$ $\angle RTS$

$15 \times 5 = 75°$ $\angle RTU$

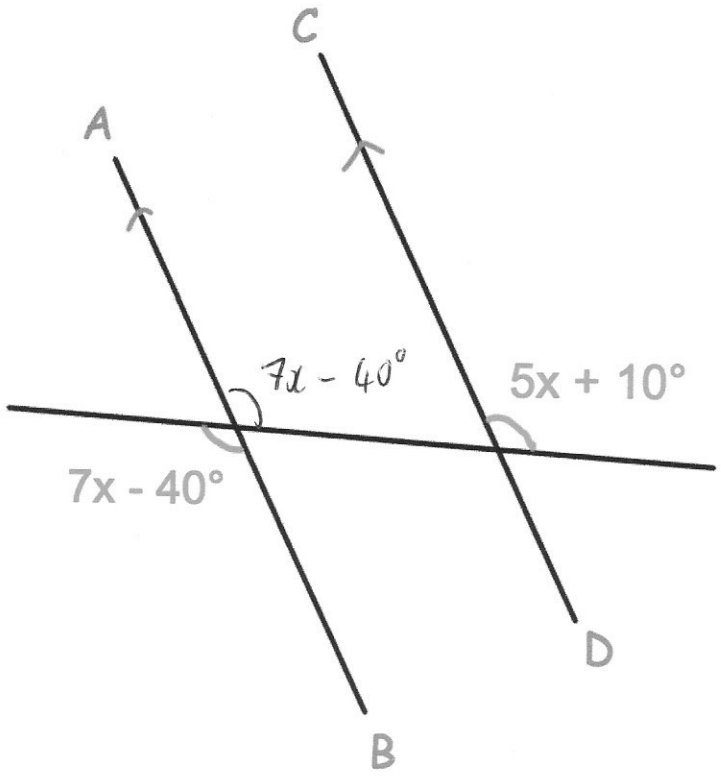
Angles in $\triangle PRT$ add to 180°.

$46 + 105° = 151°$

$180 - 151° = 29°$

(5)

16. AB and CD are parallel lines.



Work out the size of x.

$7x - 40 = 5x + 10$

$2x - 40 = 10$

$2x = 50$

$x = 25°$

25°

.....

(3)