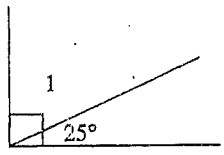
INTERSECTING LINES

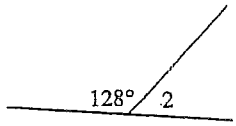
Find the measure of each required angle and give the reason for your answer.

1.



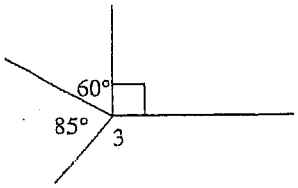
∠1 = 65° Complementary ∠'s add up to 90°

2.



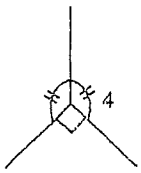
∠2 = 52° Supplementary ∠'s on a line add up to 180°

3.



∠3 = 125° angles @ a pt add up to 360°

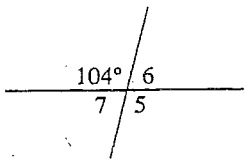
4.



∠4 = 135° angles @ a pt add up to 360°

360 − 90° = 270° ÷ 2 (equal ∠'s = 135°

5.

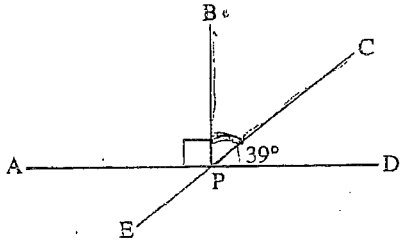


∠5 = 104° vertically opposite ∠'s are =

∠6 = 76° ∠'s on a line = 180°

∠7 = 76° vertically opposite ∠'s are =

6.

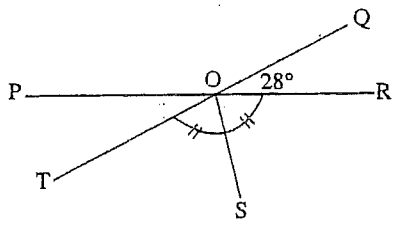


∠BPD = 90° ∠'s on a line add to 180°

∠BPC = 51° Complementary ∠'s add to 90°

∠APE = 39° vertically opposite ∠'s are =

7.



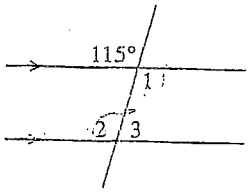
∠POT = 28° vertically opp. ∠'s are =

∠POQ = 152° ∠'s on a line add to 180°

∠ROT = 152° vertically opp. ∠'s are =

∠ROS = 76° ½ of vert. opp ∠ (∠TOS = ∠ROS)

8.

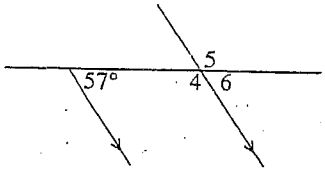


∠1 = 115° vertically opp ∠'s are =

∠2 = 115° alternate interior ∠'s

∠3 = 65° ∠'s on a line or co-interior ∠'s (with ∠1) add to 180°

9.

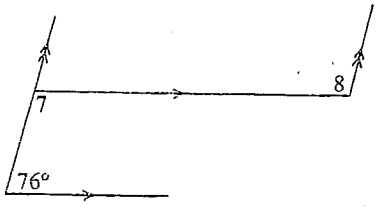


∠4 = 123° co-interior ∠'s add to 180°

∠5 = 123° vertically opp. ∠'s are =

∠6 = 57° ∠'s on a line or corresponding ∠s are = (with original 57° ∠)

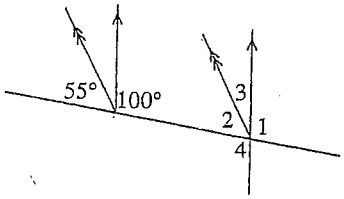
10.



∠7 = 104° co-int. ∠'s add to 180°

∠8 = 104° alternate-interior ∠'s are =

11.



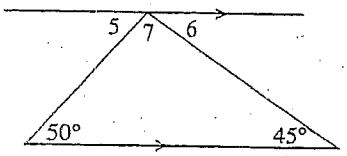
∠1 = 100° corresponding ∠'s are =

∠2 = 55° corresponding ∠'s are =

∠3 = 25° ∠'s on a line add to 180°

∠4 = 100° vertically opp. ∠'s are =

12.

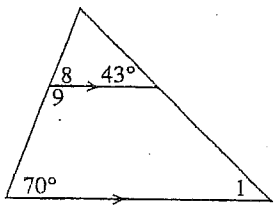


∠5 = 50° alt. interior ∠'s are =

∠6 = 45° alt. interior ∠'s are =

∠7 = 85° ∠'s on a line or ∠'s of a △ add to 180°

13.



∠8 = 70° corresponding ∠'s are =

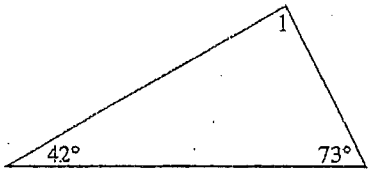
∠9 = 110° co-interior ∠'s add to 180°

∠1 = 43° corresponding ∠'s are =

TRIANGLES

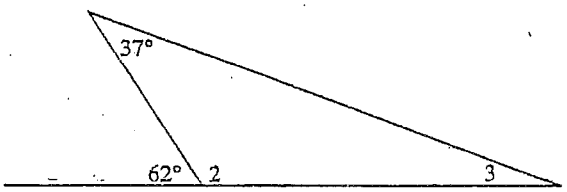
Find the measure of each required angle and give the reason for your answer.

1.



∠1 = 65° ∠'s in a △ add to 180°

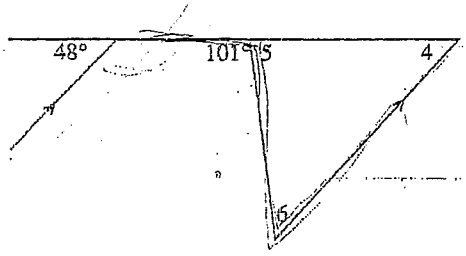
2.



∠2 = 118° ∠'s on a line add to 180°

∠3 = 25° ∠'s in a △ add to 180°

3.

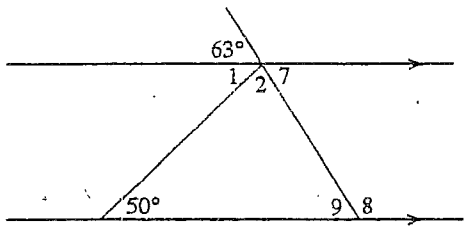


∠4 = 48° corresponding ∠'s are =

∠5 = 79° ∠'s on a line add to 180°

∠6 = 53° ∠'s in a △ add to 180°

4.



∠7 = 63° vertically opp ∠'s are =

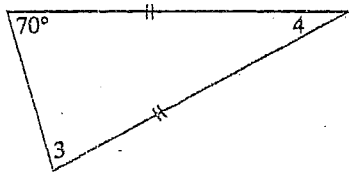
∠8 = 117° co-int. ∠'s add to 180°

∠9 = 63° ∠'s on a line or alt-int ∠'s are =

∠1 = 50° alt-int. ∠'s are =

∠2 = 67° ∠'s on a line or in a △ add to 180

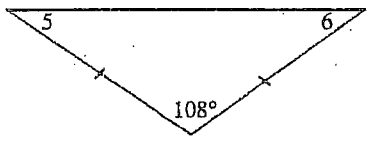
5.



∠3 = 70° ∠'s opposite = sides are =

∠4 = 40° ∠'s in a △ add to 180°

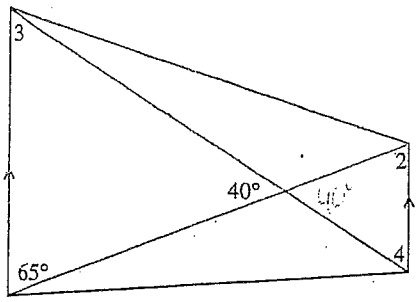
6.



∠5 = 36° ∠5 = ∠6 b/c opp = sides ∴ 180 - 108 = 72° ÷ 2 = 36°

∠6 = 36° ∠'s opp = sides or ∠'s in a △

14.

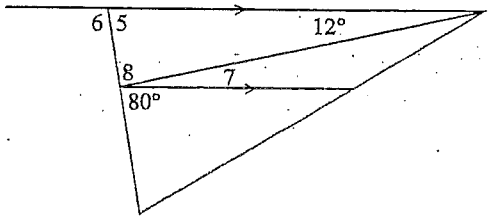


$\angle 2 =$ 65° alt. int. $\angle$'s are =

$\angle 3 =$ 75° $\angle$'s in a $\triangle$ add to 180°

$\angle 4 =$ 75° alt int $\angle$'s are =

15.



$\angle 5 =$ 80° corresponding $\angle$'s are =

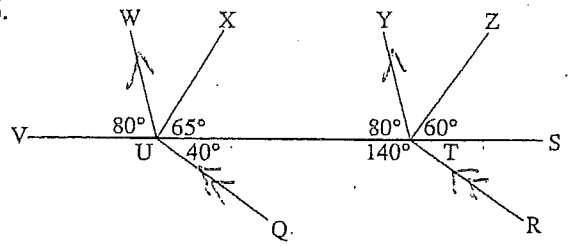
$\angle 6 =$ 100° $\angle$'s on a line add to 180°

$\angle 7 =$ 120° alt int $\angle$'s are =

$\angle 8 =$ 88° $\angle$'s in a $\triangle$ add to 180°

Name 2 pairs of parallel segments in each figure. State the reason for your answer.

16.

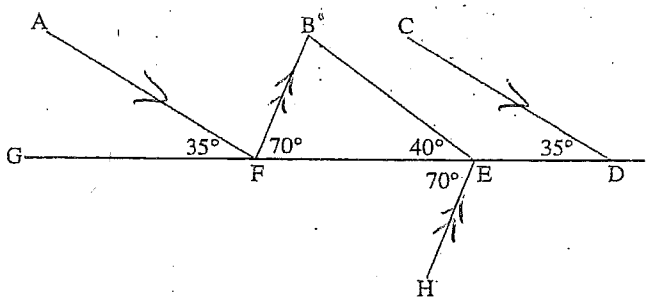


UW || TY $\angle VUW = \angle VTY$ (corresponding $\angle$s are =

UQ || TR $\angle T = 40°$ due to $\angle$'s on a line

$\therefore$ corresponding $\angle$'s are =

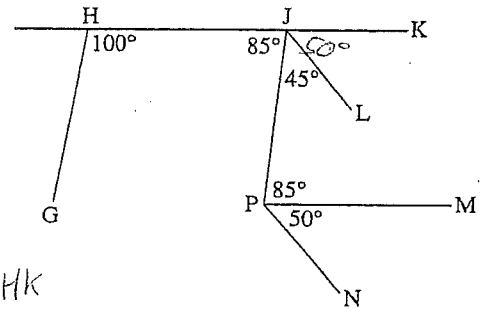
17.



AF || CD corresponding $\angle$'s are =

BF || EH alt. int. $\angle$'s are =

18.

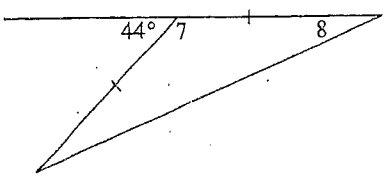


for HK

HJ || PM alt. int $\angle$'s are =

JL || PN corresponding $\angle$'s are =

7.

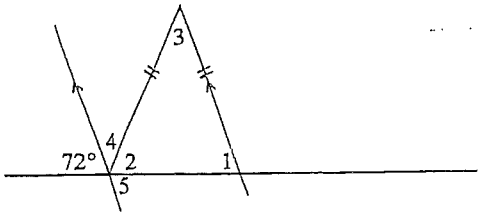


∠7 = 136 ∠'s on a line add to 180°

∠8 = 68° ∠'s opp = sides are =

$\left(\frac{180-136}{2}\right)$

8.



∠1 = 72° corresponding ∠'s are =

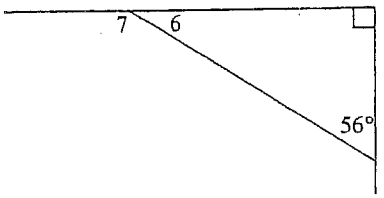
∠2 = 72° ∠'s opp. = sides are =

∠3 = 36° ∠'s in a Δ add to 180°

∠4 = 36° ∠'s on a line add to 180°

∠5 = 72° vertically opp ∠'s are =

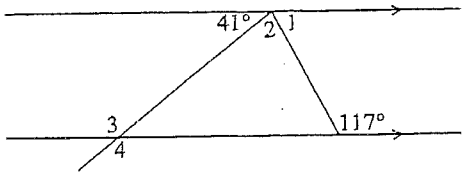
9.



∠6 = 34° ∠'s in a Δ add to 180°

∠7 = 146° ∠'s on a line add to 180°

10.



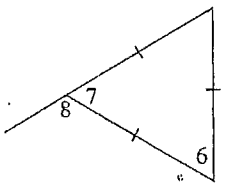
∠1 = 63° co-int. ∠'s add to 180°

∠2 = 76° ∠'s on a line add to 180°

∠3 = 139° co-int ∠'s add to 180°

∠4 = 139° vertically opp. ∠'s are =

11.

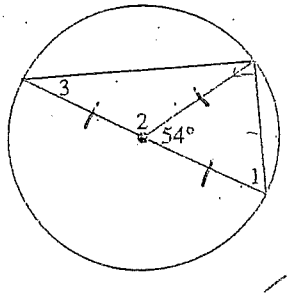


∠6 = 60° all ∠'s in equilateral Δ = 60°

∠7 = 60° ∠'s opp. ∠ sides are =

∠8 = 120° ∠'s on a line add to 180°

12.



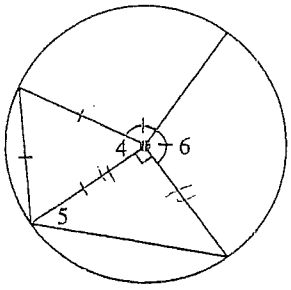
$\left(\frac{180-54}{2}\right) = 63$

∠1 = 63° ∠'s opp = sides (radius) are =

∠2 = 126° ∠'s on a line add to 180°

∠3 = 27° ∠'s opp = sides are =

13.

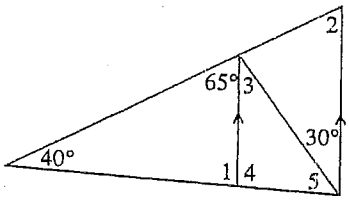


$\angle 4 =$ 60° all $\triangle$'s in equilateral $\triangle = 60°$

$\angle 5 =$ 45° $\triangle$'s opp = sides are =

$\angle 6 =$ 105° $\triangle$'s around a pt add to 360°

14. $\left(\frac{360-90-60}{2}\right)$



$\angle 1 =$ 75° $\triangle$'s in a $\triangle$ add to 180°.

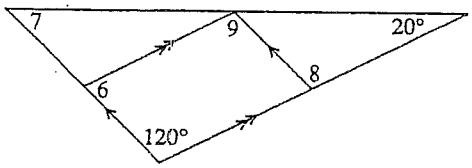
$\angle 2 =$ 65° Corresponding $\angle$'s are =

$\angle 3 =$ 30° alt. int $\angle$'s are =

$\angle 4 =$ 105° $\angle$'s on a line add to 180°

$\angle 5 =$ 45° $\triangle$'s in a $\triangle$ add to 180°

15.



$\angle 6 =$ 60° co-int $\angle$'s add to 180°

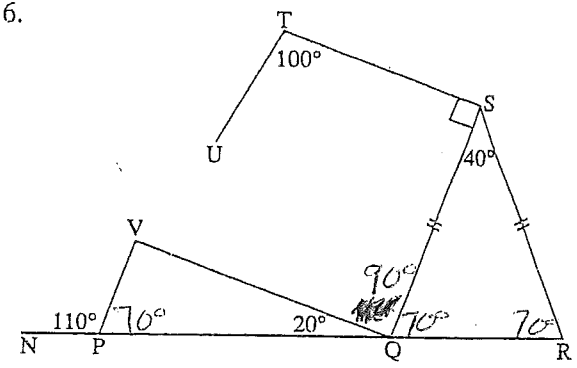
$\angle 7 =$ 40° $\triangle$'s in a $\triangle$ add to 180°

$\angle 8 =$ 120° corresponding $\angle$'s are =

$\angle 9 =$ 120° alt. int $\angle$'s are = or $\triangle$'s opp. each other in parallelogram are =

Name all the pairs of parallel segments in each figure. State the reason for your answer.

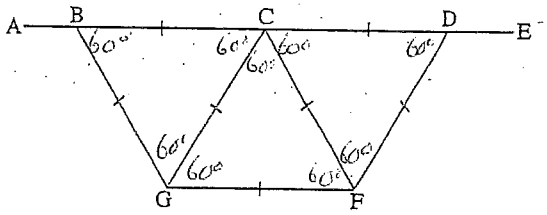
16.



PV || QS alt. int. $\angle$'s are =

TS || VQ co-int $\angle$'s add to 180°

17.

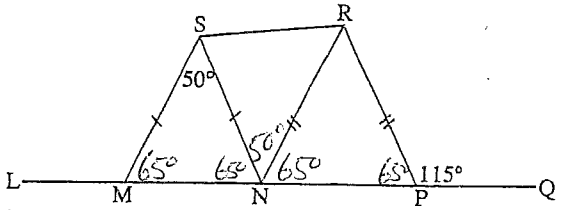


RG || CF Corresponding $\angle$'s are =

AE || GF alt. int $\angle$'s are =

CG || DF corresponding $\angle$'s are =

18.



HS || NR alt int $\angle$'s are =

SN || RP corresponding $\angle$'s are =