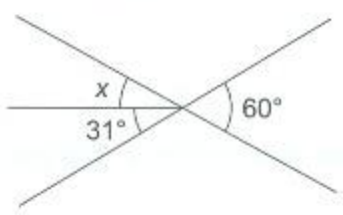
## Tutorial 2

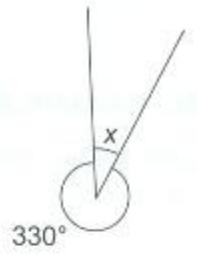
1. Find the unknown angles in the following figures.

(a)



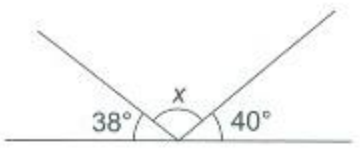

$\angle x =$ _____

(b)



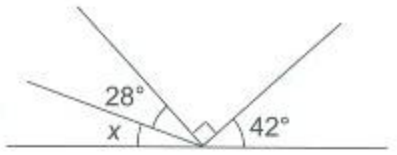

$\angle x =$ _____

(c)



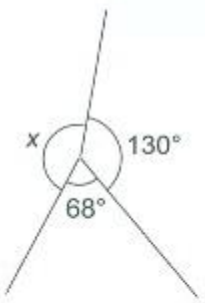

$\angle x =$ _____

(d)



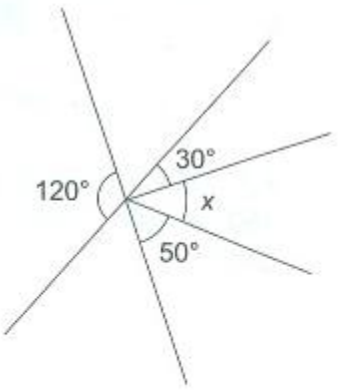

$\angle x =$ _____

(e)




$\angle x =$ _____

(f)




$\angle x =$ _____

**Answer**

**Question 1**

a) 29°

b) 30°

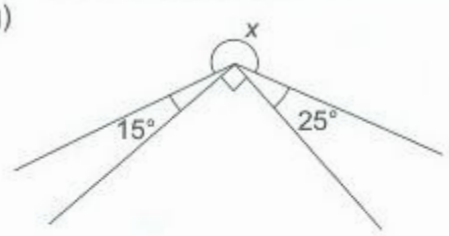
c) 102°

d) 20°

e) 162°

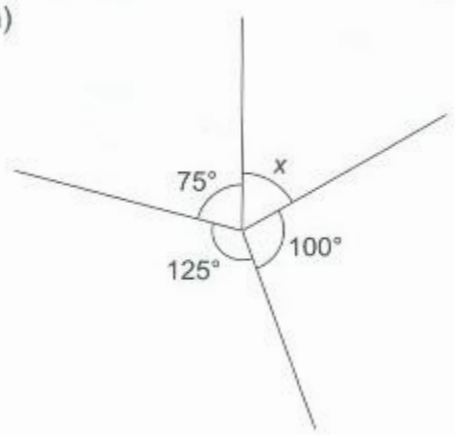
f) 40°

(g)



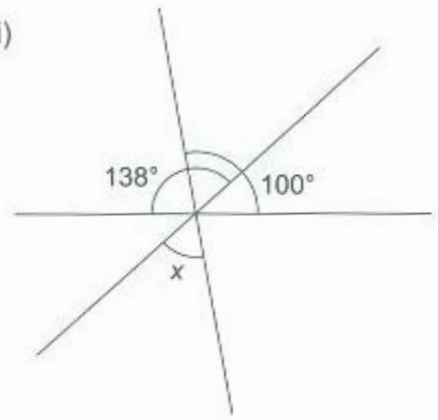

$\angle x =$ _____

(h)



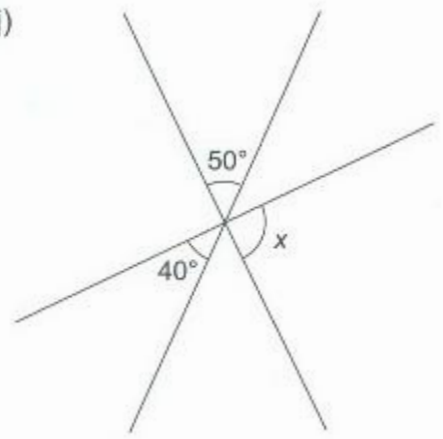

$\angle x =$ _____

(i)



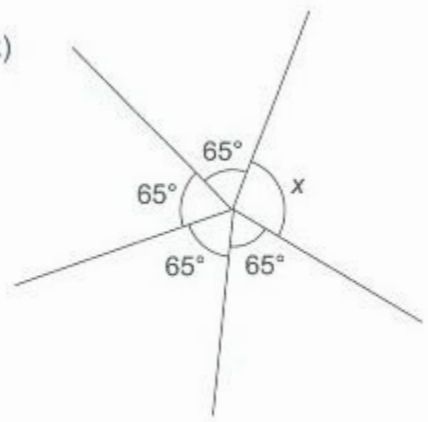

$\angle x =$ _____

(j)



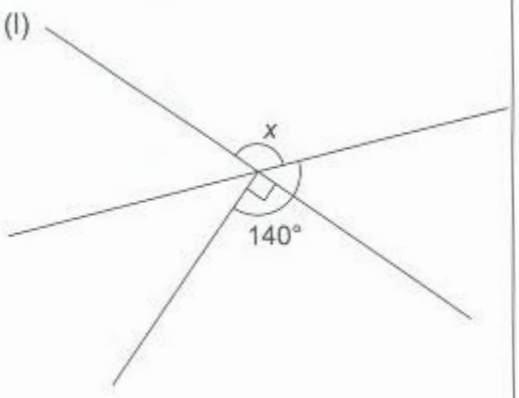

$\angle x =$ _____

(k)




$\angle x =$ _____

(l)




$\angle x =$ _____

**Answer**

**Question 1**

g) 230 °

h) 60 °

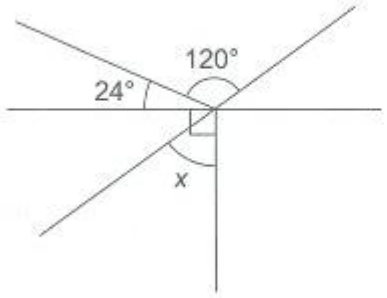
i) 58 °

j) 90 °

k) 100 °

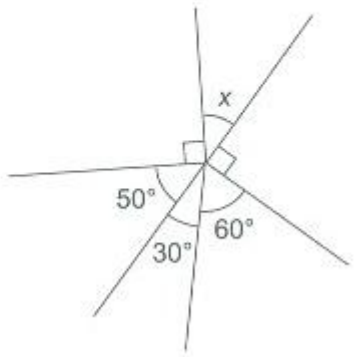
l) 130 °

(m)



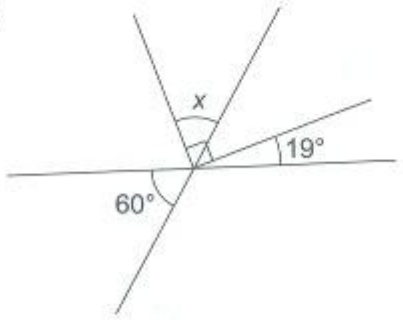

$\angle x =$ _____

(n)



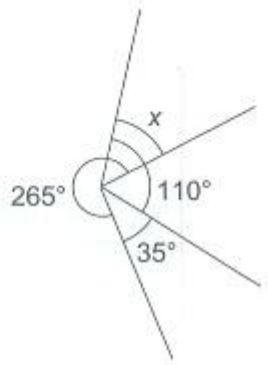

$\angle x =$ _____

(o)



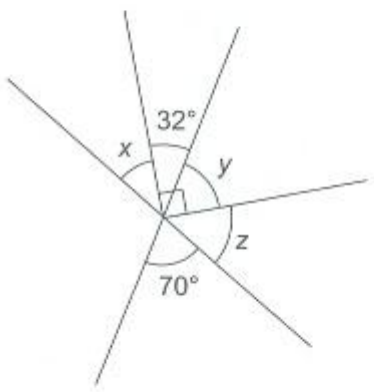

$\angle x =$ _____

(p)




$\angle x =$ _____

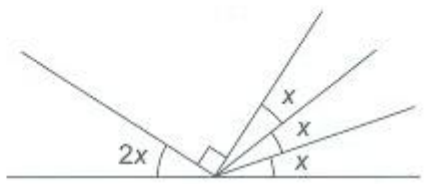
(q)




$\angle x =$ _____, $\angle y =$ _____,

$\angle z =$ _____

(r)




$\angle x =$ _____

**Answer**

**Question 1**

m) $54^o$

n) $40^o$

o) $49^o$

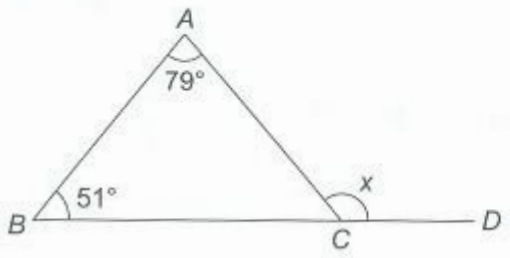
p) $50^o$

q) $x = 38^o, y = 58^o, z = 52^o$

r) $18^o$

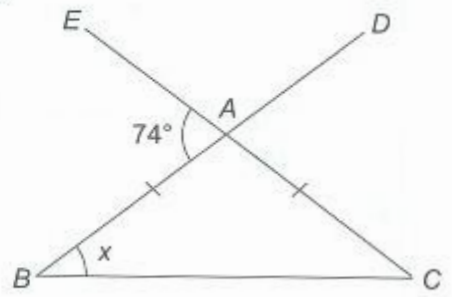
2. Find the unknown angles in the following figures.

(a)



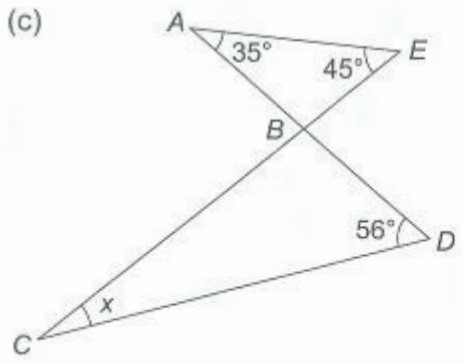

$\angle x =$ _____

(b)



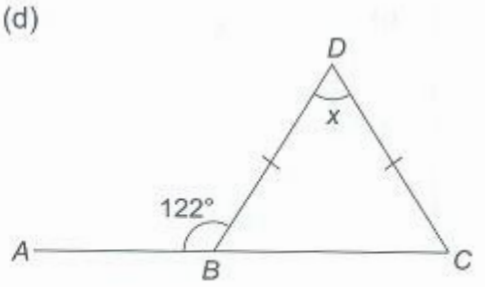

$\angle x =$ _____

(c)



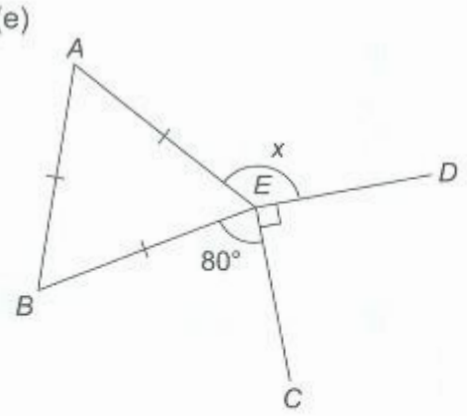

$\angle x =$ _____

(d)



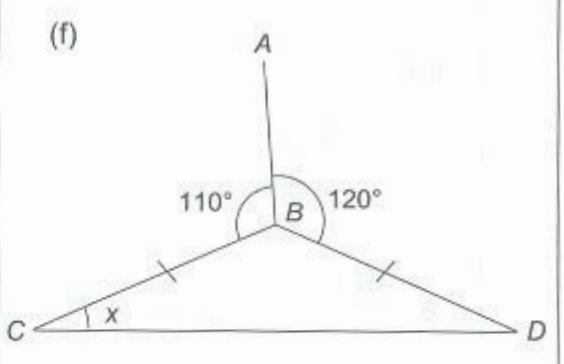

$\angle x =$ _____

(e)




$\angle x =$ _____

(f)




$\angle x =$ _____

**Answer**

**Question 2**

m) 130°

n) 37°

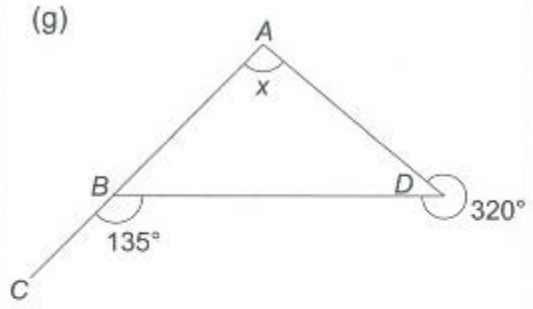
o) 24°

p) 64°

q) 130°

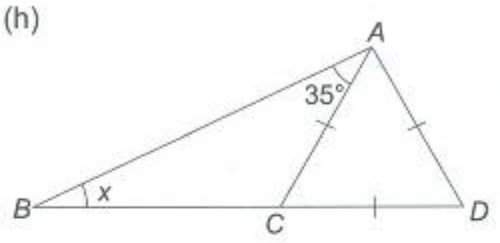
r) 25°

(g)



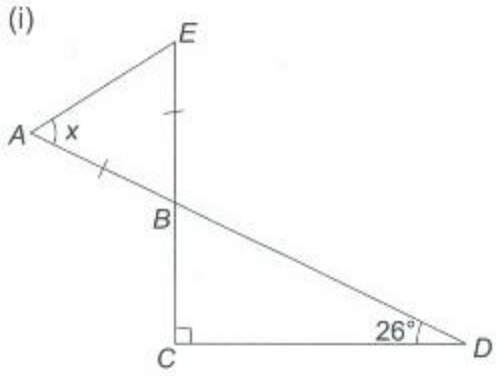

$\angle x =$ _____

(h)



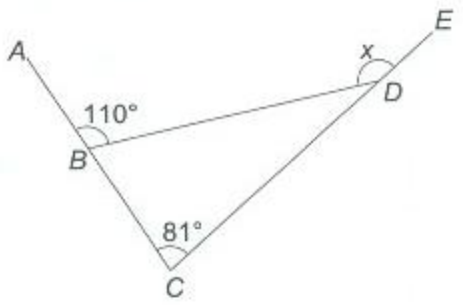

$\angle x =$ _____

(i)



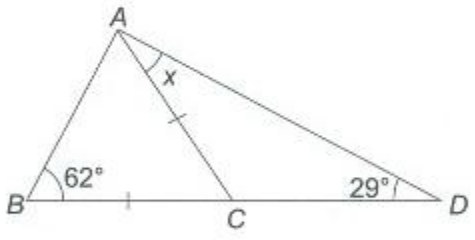

$\angle x =$ _____

(j)



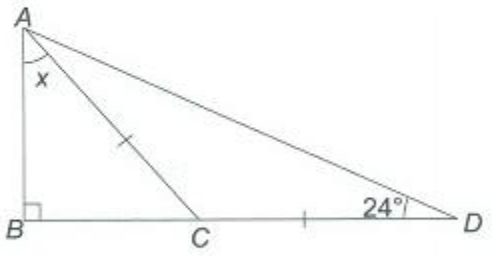

$\angle x =$ _____

(k)




$\angle x =$ _____

(l)




$\angle x =$ _____

**Answer**

**Question 2**

g) 95°

h) 25°

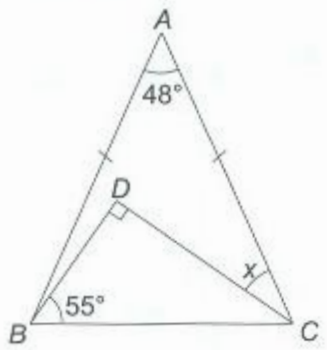
i) 58°

j) 151°

k) 27°

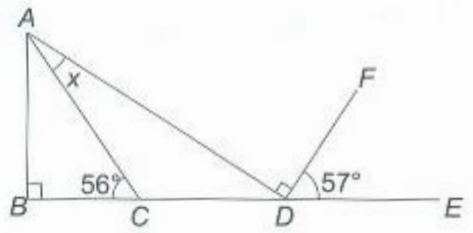
l) 42°

(m)



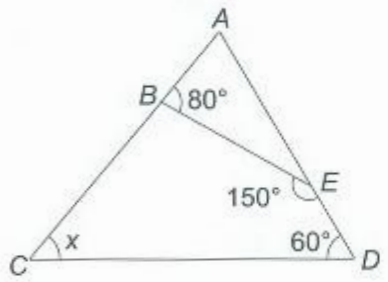

$\angle x =$ _____

(n)



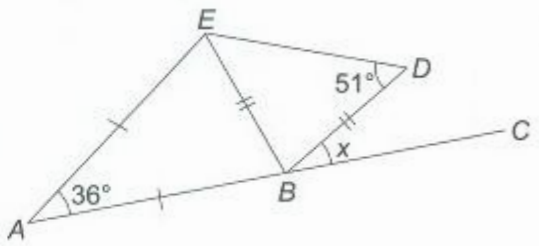

$\angle x =$ _____

(o)



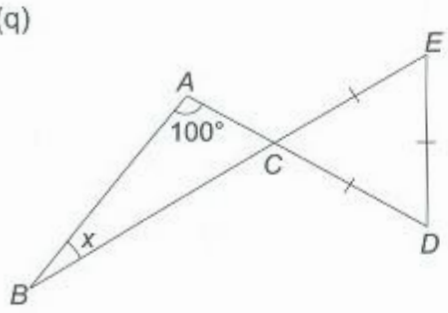

$\angle x =$ _____

(p)



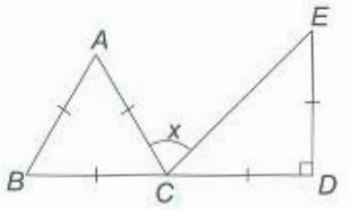

$\angle x =$ _____

(q)




$\angle x =$ _____

(r)




$\angle x =$ _____

**Answer**

**Question 2**

m) 31°

n) 23°

o) 50°

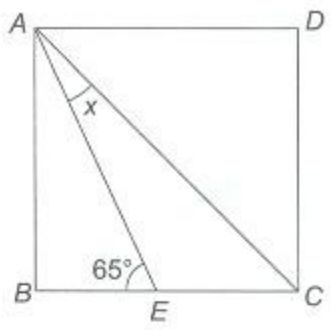
p) 30°

q) 20°

r) 75°

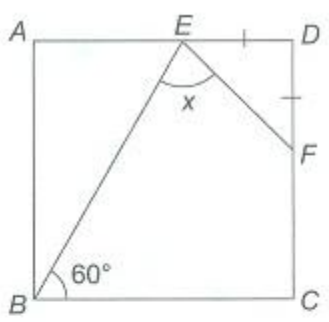
3. Find the unknown angles in the following figures. *ABCD* is a **square**.

(a)



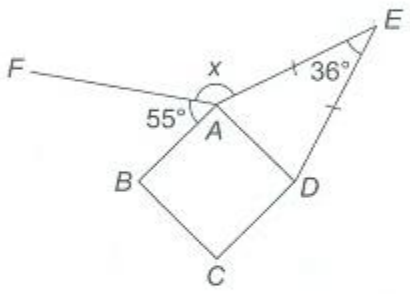

$\angle x =$ _____

(b)



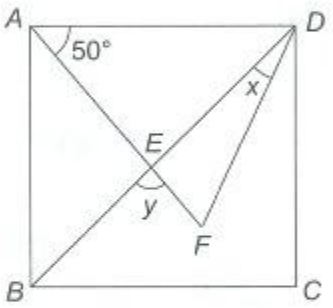

$\angle x =$ _____

(c)




$\angle x =$ _____

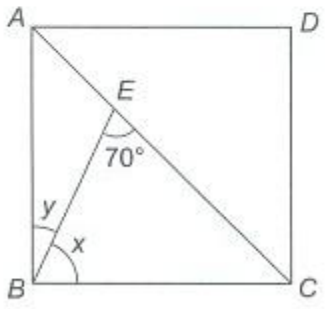
(d)




$AD = AF$

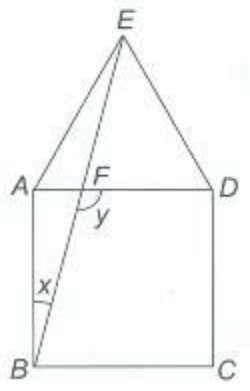
$\angle x =$ _____, $\angle y =$ _____

(e)




$\angle x =$ _____, $\angle y =$ _____

(f)




*ADE* is an equilateral triangle.

$\angle x =$ _____, $\angle y =$ _____

**Answer**

**Question 3**

a) $20^\circ$

b) $75^\circ$

c) $143^\circ$

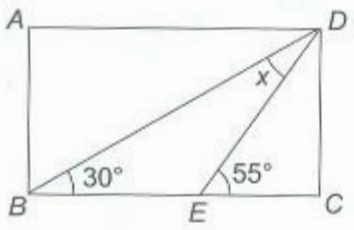
d) $x = 20^\circ, y = 85^\circ$

e) $x = 65^\circ, y = 25^\circ$

f) $x = 15^\circ, y = 105^\circ$

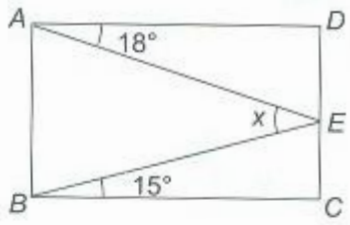
4. Find the unknown angles in the following figures. *ABCD* is a **rectangle.**

(a)



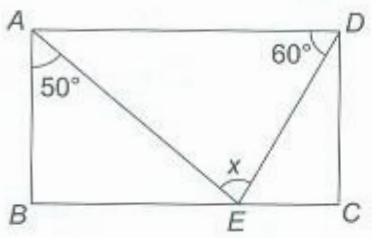

$\angle x =$ _____

(b)



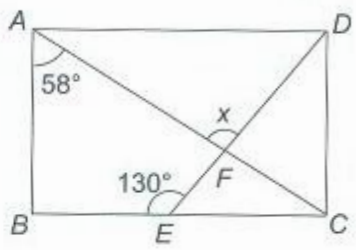

$\angle x =$ _____

(c)



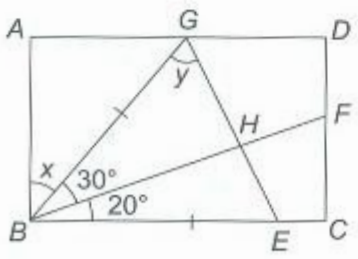

$\angle x =$ _____

(d)




$\angle x =$ _____

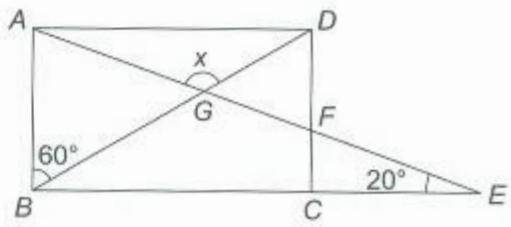
(e)




$BE = BG$

$\angle x =$ _____, $\angle y =$ _____

(f)




$\angle x =$ _____

**Answer**

**Question 4**

a) 25°

b) 33°

c) 80°

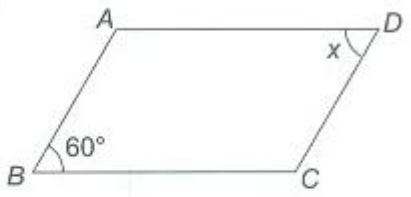
d) 98°

e) x = 40°, y = 65°

f) 130°

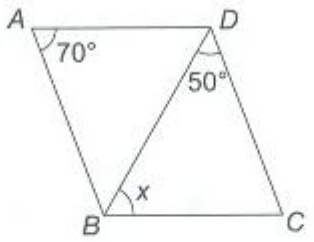
5. Find the unknown angles in the following figures. *ABCD* is a **parallelogram**.

(a)



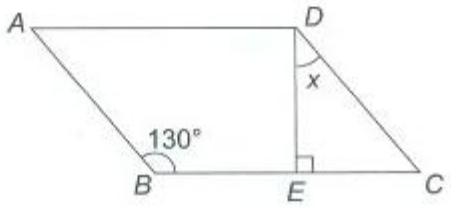

$\angle x =$ _____

(b)



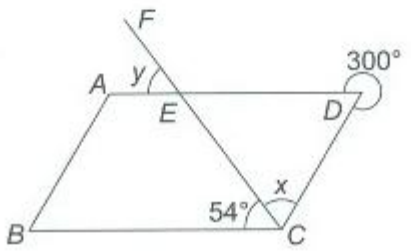

$\angle x =$ _____

(c)



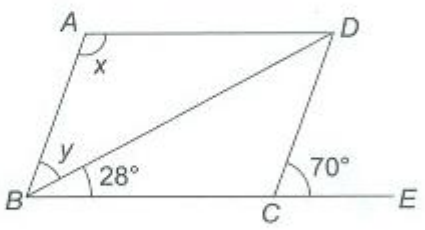

$\angle x =$ _____

(d)



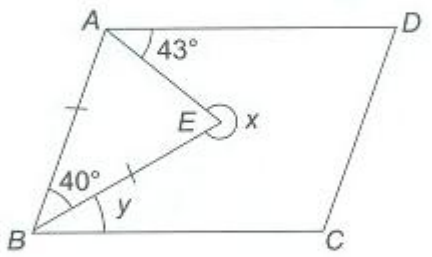

$\angle x =$ _____, $\angle y =$ _____

(e)




$\angle x =$ _____, $\angle y =$ _____

(f)




$\angle x =$ _____, $\angle y =$ _____

**Answer**

**Question 5**

a) $60^\circ$

b) $60^\circ$

c) $40^\circ$

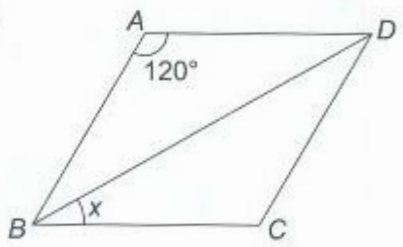
d) $x = 66^\circ, y = 54^\circ$

e) $x = 110^\circ, y = 42^\circ$

f) $x = 290^\circ, y = 27^\circ$

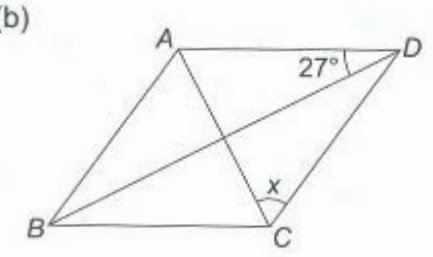
6. Find the unknown angles in the following figures. *ABCD* is a **rhombus**.

(a)



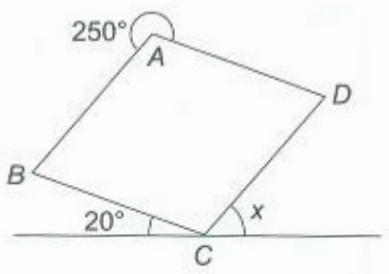

$\angle x =$ _____

(b)



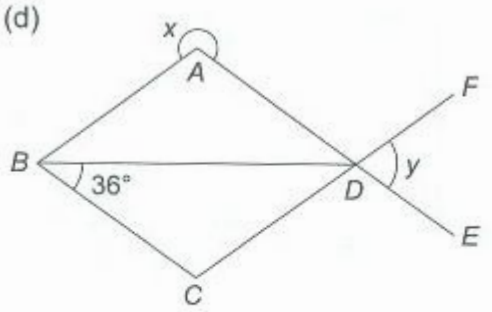

$\angle x =$ _____

(c)



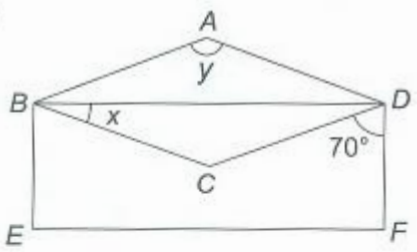

$\angle x =$ _____

(d)




$\angle x =$ _____, $\angle y =$ _____

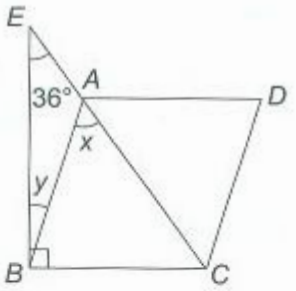
(e)




*BEFD* is a rectangle.

$\angle x =$ _____, $\angle y =$ _____

(f)




$\angle x =$ _____, $\angle y =$ _____

**Answer**

**Question 6**

a) $30^\circ$

b) $63^\circ$

c) $50^\circ$

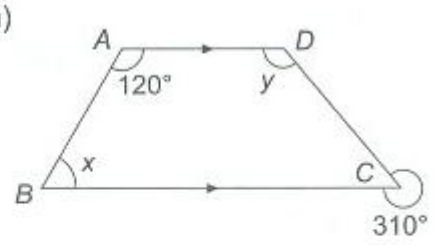
d) $x = 252^\circ$, $y = 72^\circ$

e) $x = 20^\circ$, $y = 140^\circ$

f) $x = 54^\circ$, $y = 18^\circ$

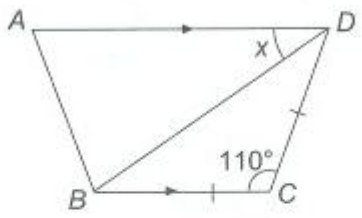
7. Find the unknown angles in the following figures. *ABCD* is a **trapezium**.

(a)



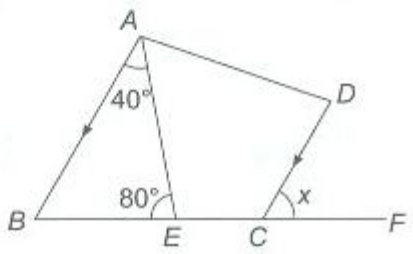

$\angle x =$ _____, $\angle y =$ _____

(b)



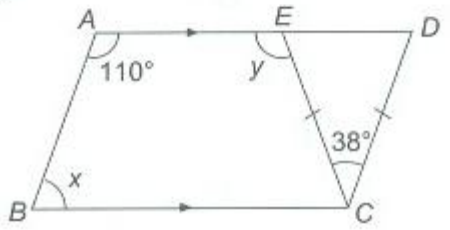

$\angle x =$ _____

(c)



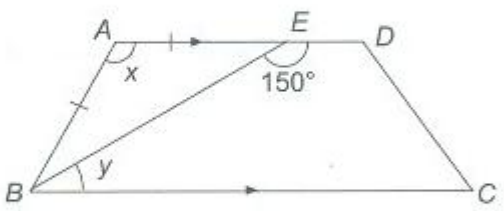

$\angle x =$ _____

(d)




$\angle x =$ _____, $\angle y =$ _____

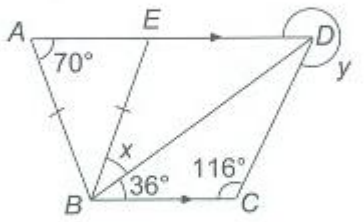
(e)




$AB = AE$

$\angle x =$ _____, $\angle y =$ _____

(f)




$\angle x =$ _____, $\angle y =$ _____

**Answer**

**Question 7**

a) $x = 60^\circ$, $y = 130^\circ$

b) $35^\circ$

c) $60^\circ$

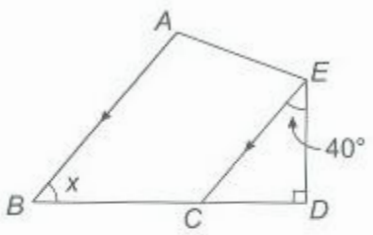
d) $x = 70^\circ$, $y = 109^\circ$

e) $x = 120^\circ$, $y = 30^\circ$

f) $x = 34^\circ$, $y = 296^\circ$

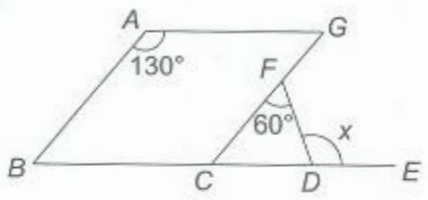
8. Find the unknown angles in the following figures.

(a)




$\angle x =$ _____

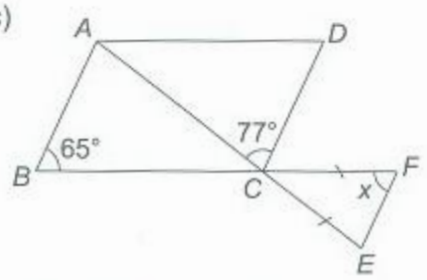
(b)




*ABCG* is a parallelogram.

$\angle x =$ _____

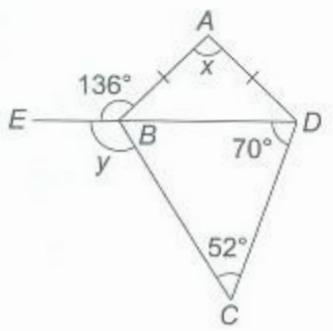
(c)




*ABCD* is a parallelogram.

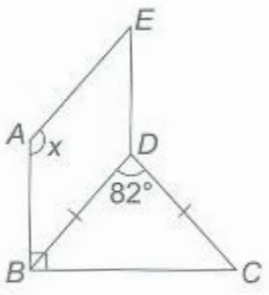
$\angle x =$ _____

(d)




$\angle x =$ _____, $\angle y =$ _____

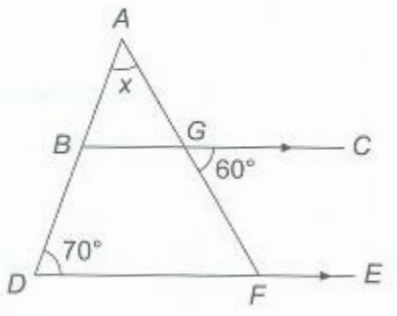
(e)




*ABDE* is a parallelogram.

$\angle x =$ _____

(f)




$\angle x =$ _____

**Answer**

**Question 8**

a) 50°

b) 110°

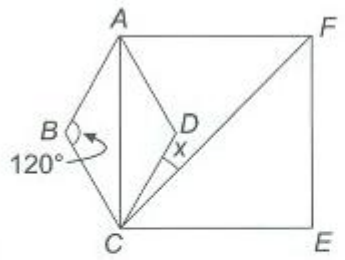
c) 71°

d) x = 92°, y = 122°

e) 139°

f) 50°

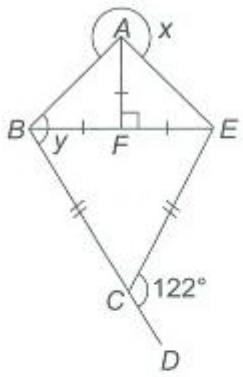
(g)




*ABCD* is a rhombus.
*ACEF* is a square.

$\angle x =$ _____

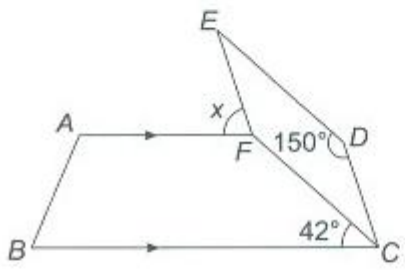
(h)




$\angle x =$ _____

$\angle y =$ _____

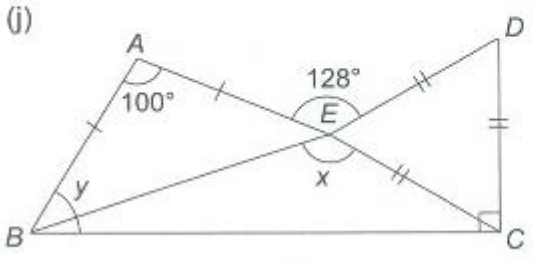
(i)




*CDEF* is a parallelogram.

$\angle x =$ _____

(j)




$\angle x =$ _____

$\angle y =$ _____

**Answer**

**Question 8**

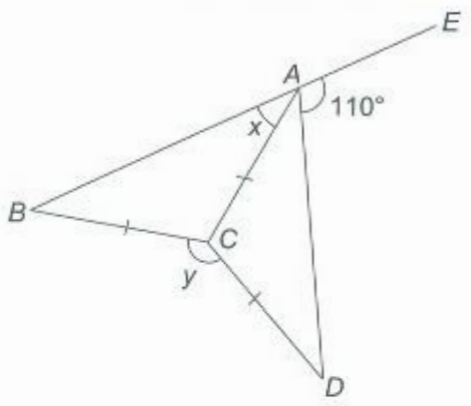
g) 18°

h) x = 270°, y = 106°

i) 72°

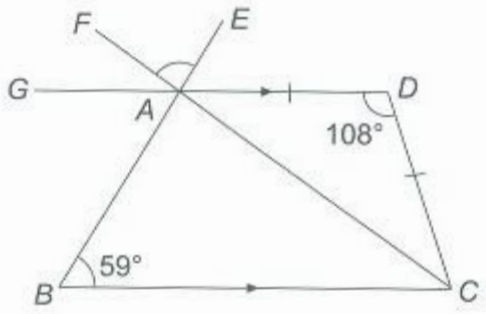
j) x = 132°, y = 58°

9. In the figure below, $ABC$ and $ADC$ are two identical isosceles triangles. $BAE$ is a straight line, $CA = CB = CD$ and $\angle DAE = 110°$. Find $\angle x$ and $\angle y$.



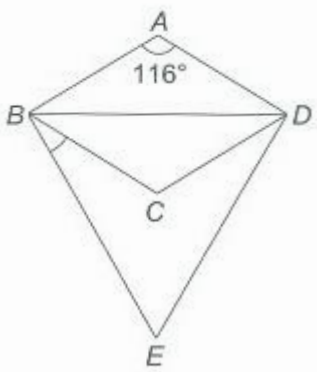

Ans: _____

10. In the figure below, $ABCD$ is a trapezium. $GAD$, $BAE$ and $CAF$ are straight lines. $DA = DC$, $\angle ABC = 59°$ and $\angle ADC = 108°$. Find $\angle FAE$.




Ans: _____

11. In the figure below, $ABCD$ is a rhombus and $BED$ is an equilateral triangle. Find $\angle CBE$.




Ans: _____

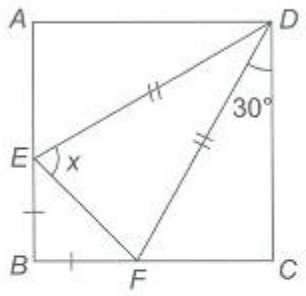
**Answer**

9) x = 35°, y = 140°

10) 85°

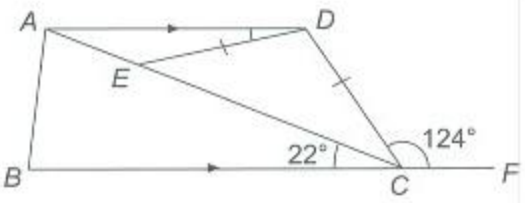
11) 28°

12. In the figure below, $ABCD$ is a square. $BE = BF$, $DE = DF$ and $\angle CDF = 30°$. Find $\angle x$.



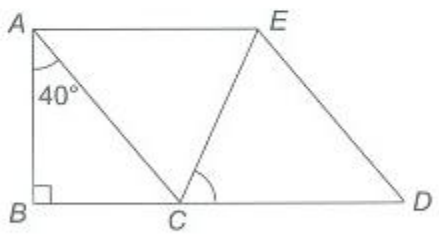

Ans: _____

13. In the figure below, $ABCD$ is a trapezium. $AEC$ and $BCF$ are straight lines. $DE = DC$, $\angle ACB = 22°$ and $\angle DCF = 124°$. Find $\angle ADE$.




Ans: _____

14. In the figure below, $ABC$ is a right-angled triangle and $ACDE$ is a rhombus. $BCD$ is a straight line and $\angle BAC = 40°$. Find $\angle DCE$.




Ans: _____

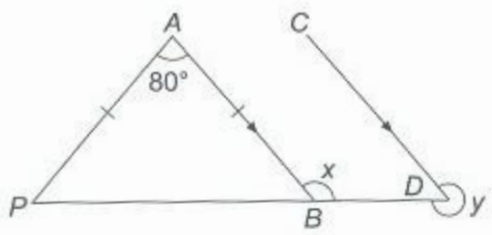
**Answer**

12) 75°

13) 12°

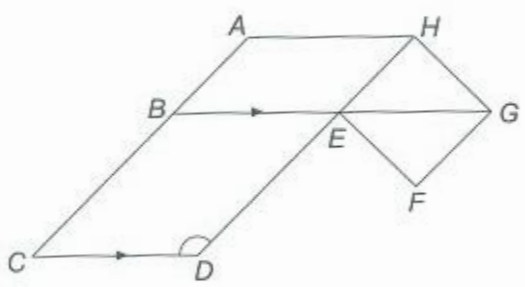
14) 65°

15. In the figure below, $AB$ is parallel to $CD$, $AP = AB$ and $PBD$ is a straight line. If $\angle PAB = 80°$, find $\angle x$ and $\angle y$.



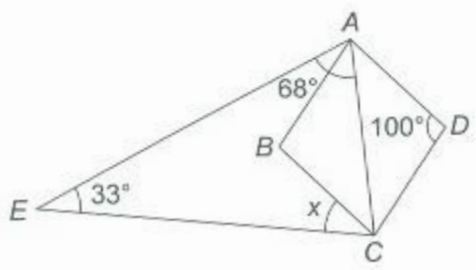

Ans: _____

16. In the figure below, $ACDH$ is a parallelogram, $EFGH$ is a square and the straight line $BEG$ is parallel to $CD$. Find $\angle CDE$.




Ans: _____

17. In the figure below, $ABCD$ is a rhombus. Find $\angle x$.




Ans: _____

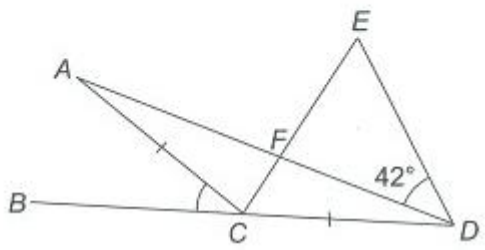
**Answer**

15) 310°

16) 135°

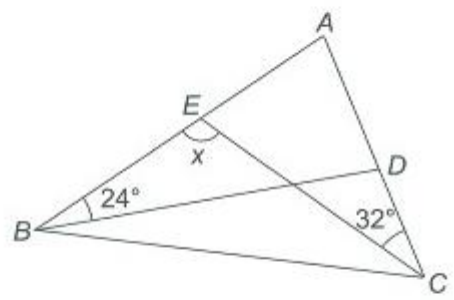
17) 39°

18. In the figure below, *ACD* is an isosceles triangle and *CDE* is an equilateral triangle. *BCD* is a straight line. Find $\angle ACB$.



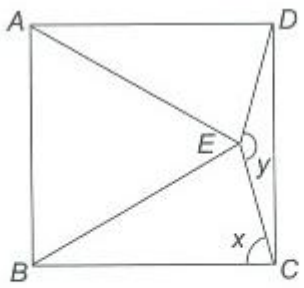

Ans: _____

19. In the figure below, $BA = BD$, $\angle ABD = 24°$ and $\angle ACE = 32°$. Find $\angle x$.




Ans: _____

20. In the figure below, *ABCD* is a square and *ABE* is an equilateral triangle. Find $\angle x$ and $\angle y$.




Ans: _____

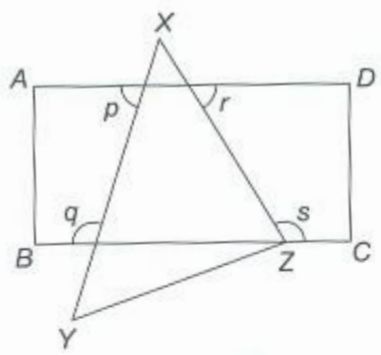
**Answer**

18) 36°

19) 110°

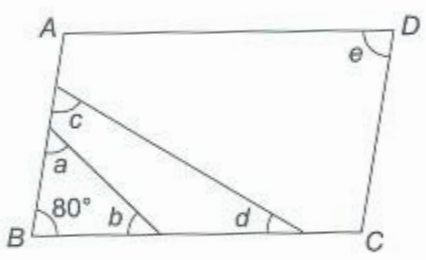
20) x = 75°, y = 150°

21. In the figure below, *ABCD* is a rectangle and *XYZ* is a triangle. Find $\angle p + \angle q + \angle r + \angle s$.



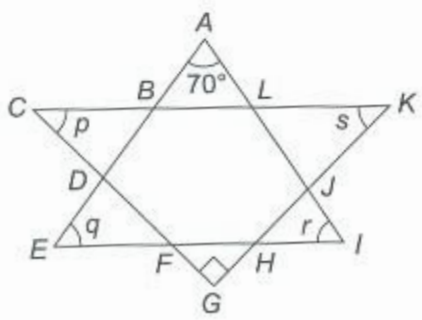

Ans: _____

22. In the figure below, *ABCD* is a parallelogram. Find the sum of $\angle a$, $\angle b$, $\angle c$, $\angle d$ and $\angle e$.




Ans: _____

23. Find the sum of $\angle p$, $\angle q$, $\angle r$ and $\angle s$.




Ans: _____

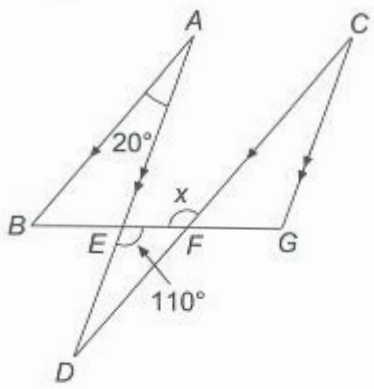
**Answer**

21) 360°

22) 280°

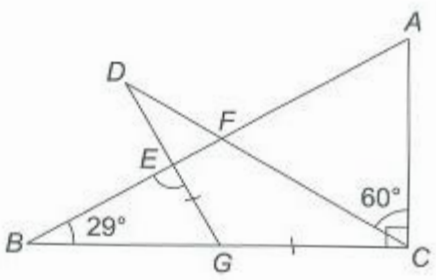
23) 200°

24. In the figure below, $AB$ is parallel to $CD$, $AD$ is parallel to $CG$ and $BEFG$ is a straight line. Find $\angle x$.



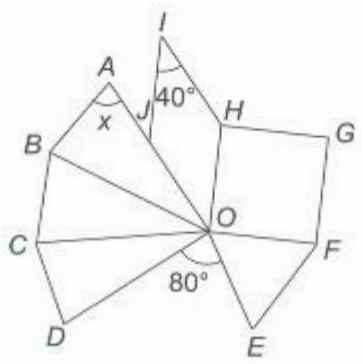

Ans: _____

25. In the figure below, $ABC$ is a right-angled triangle and $CDG$ is an isosceles triangle. Find $\angle BEG$.




Ans: _____

26. The figure below is made up of three identical isosceles triangles, a rhombus, a square and an equilateral triangle. Find $\angle x$.




Ans: _____

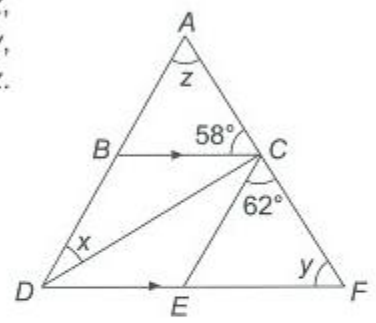
**Answer**

24) 130°

25) 91°

26) 75°

27. In the figure below, *ADF* is a triangle and *BDEC* is a rhombus. *BC* is parallel to *DF*, $\angle ACB = 58°$ and $\angle ECF = 62°$.
Find
(a) $\angle x$,
(b) $\angle y$,
(c) $\angle z$.

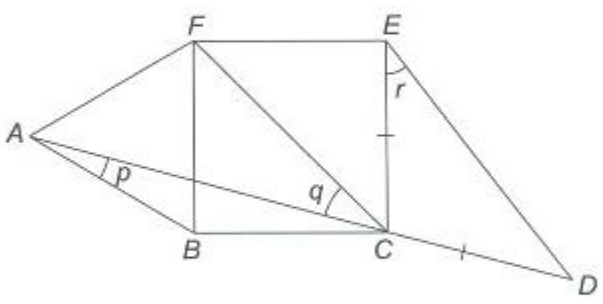



Ans: (a) _____

(b) _____

(c) _____

28. In the figure below, *ABF* is an equilateral triangle, *BCEF* is a square and *CDE* is an isosceles triangle. *ACD* is a straight line.
Find
(a) $\angle p$,
(b) $\angle q$,
(c) $\angle r$.




Ans: (a) _____

(b) _____

(c) _____

**Answer**

Question 27

a) $x = 30°$

b) $y = 58°$

c) $z = 62°$

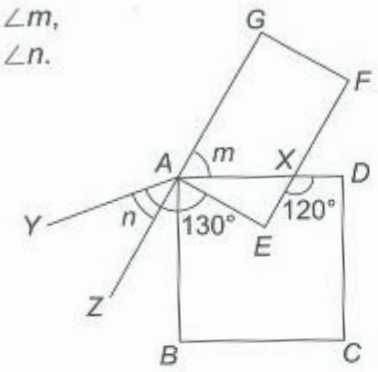
Question 28

a) $p = 15°$

b) $q = 30°$

c) $r = 37.5°$

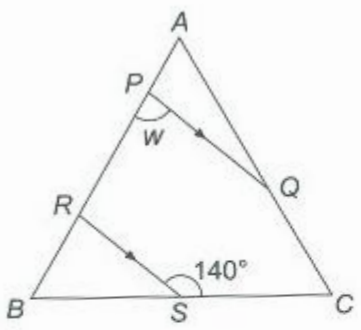
29. In the figure below, *ABCD* is a square and *AEFG* is a rectangle. *GAZ* is a straight line, $\angle DXE = 120°$ and $\angle YAE = 130°$.
Find
(a) $\angle m$,
(b) $\angle n$.




Ans: (a) _____

(b) _____

30. In the figure below, *ABC* is an equilateral triangle. *PQ* is parallel to *RS* and $\angle RSC = 140°$. Find $\angle w$.



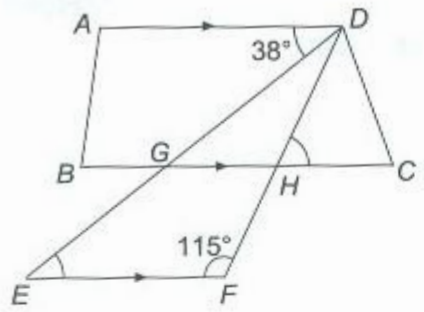

Ans: _____

**Answer**

Question 29
a) m = 60°
b) n = 40°

Q30) 80°

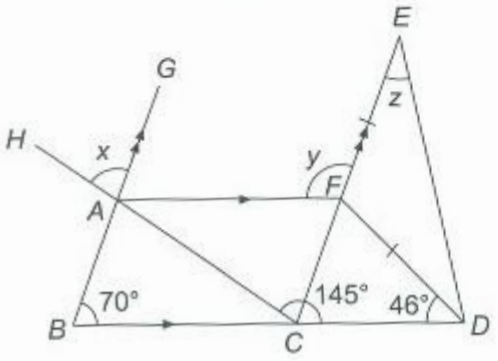
31. In the figure below, *ABCD* is a trapezium and *DEF* is a triangle. *EF* is parallel to *AD*, $\angle ADE = 38°$ and $\angle DFE = 115°$.
Find
(a) $\angle DEF$,
(b) $\angle DHC$.




Ans: (a) _____

(b) _____

32. In the figure below, *ABDF* is a trapezium, *DEF* is an isosceles triangle and *BG* is parallel to *CE*. *CAH* is a straight line. $\angle ABC = 70°$, $\angle ACD = 145°$ and $\angle CDF = 46°$.
Find
(a) $\angle x$,
(b) $\angle y$,
(c) $\angle z$.




Ans: (a) _____

(b) _____

(c) _____

**Answer**

Question 31
a) 38°
b) 67°

Question 32
a) x = 75°
b) y = 110°
c) z = 32°