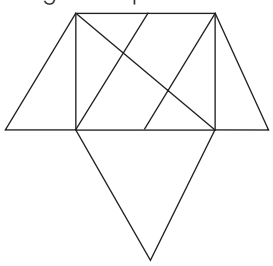
18 COUNTING THE FIGURES

EXERCISE 18B

For CHSL Exam

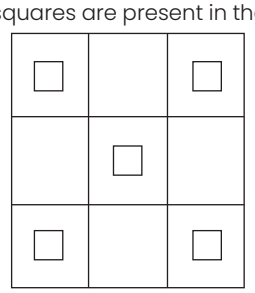
1. How many triangles are present in the following figure?



SSC CHSL 11/7/2019 (Shift-1)

(a) 14 (b) 15 (c) 16 (d) 13

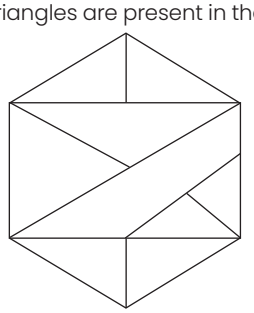
2. How many squares are present in the following figure?



SSC CHSL 11/7/2019 (Shift-3)

(a) 17 (b) 19 (c) 23 (d) 21

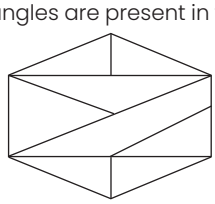
3. How many triangles are present in the following figure?



SSC CHSL 11/7/2019 (Shift-2)

(a) 14 (b) 16 (c) 13 (d) 11

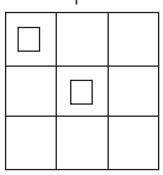
4. How many triangles are present in the following figure?



SSC CHSL 11/7/2019 (Shift-1)

(a) 11 (b) 9 (c) 10 (d) 13

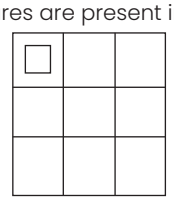
5. How many squares are present in the following figure?



SSC CHSL 10/7/2019 (Shift-3)

(a) 12 (b) 14 (c) 18 (d) 16

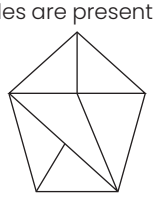
6. How many squares are present in the following figure?



SSC CHSL 10/7/2019 (Shift-2)

(a) 16 (b) 10 (c) 15 (d) 12

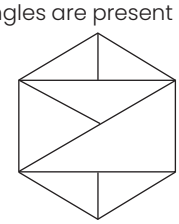
7. How many triangles are present in the following figure?



SSC CHSL 10/7/2019 (Shift-1)

(a) 7 (b) 9 (c) 8 (d) 11

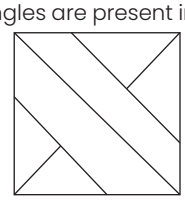
8. How many triangles are present in the following figure?



SSC CHSL 9/7/2019 (Shift-3)

(a) 10 (b) 9 (c) 12 (d) 13

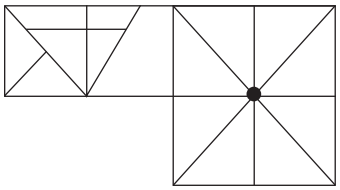
9. How many triangles are present in the following figure?



SSC CHSL 9/7/2019 (Shift-2)

(a) 8 (b) 7 (c) 10 (d) 5

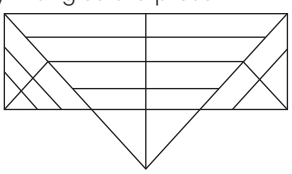
10. How many triangles are present in the given figure?



SSC CHSL 9/7/2019 (Shift-1)

(a) 26 (b) 27 (c) 28 (d) 25

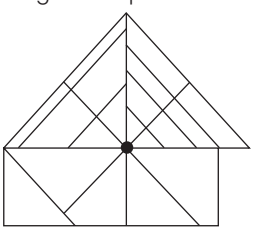
11. How many triangles are present in the given figure?



SSC CHSL 8/7/2019 (Shift-3)

(a) 28 (b) 32 (c) 31 (d) 30

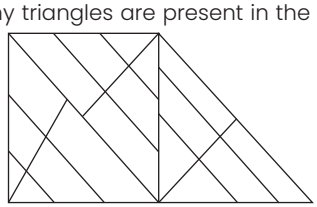
12. How many triangles are present in the given figure?



SSC CHSL 8/7/2019 (Shift-2)

(a) 25 (b) 27 (c) 24 (d) 26

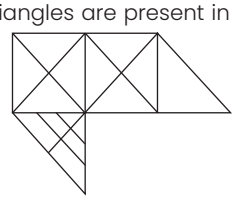
13. How many triangles are present in the given figure?



SSC CHSL 8/7/2019 (Shift-1)

(a) 29 (b) 28 (c) 27 (d) 30

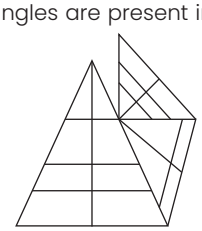
14. How many triangles are present in the given figure?



SSC CHSL 5/7/2019 (Shift-3)

(a) 29 (b) 31 (c) 30 (d) 32

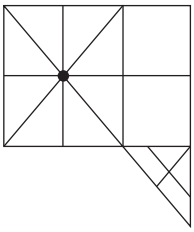
15. How many triangles are present in the given figure?



SSC CHSL 5/7/2019 (Shift-2)

(a) 28 (b) 25 (c) 26 (d) 27

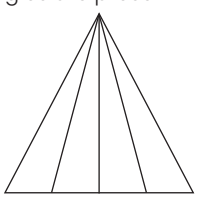
16. How many triangles are present in the given figure?



SSC CHSL 5/7/2019 (Shift-1)

(a) 22 (b) 23 (c) 25 (d) 24

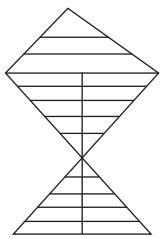
17. How many triangles are present in the following figure?



SSC CHSL 4/7/2019 (Shift-3)

(a) 9 (b) 10 (c) 8 (d) 6

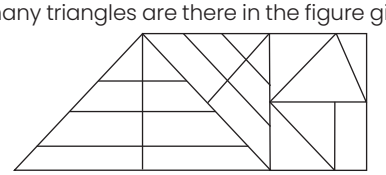
18. How many triangles are there in the figure given below.



SSC CHSL 4/7/2019 (Shift-2)

(a) 33 (b) 32 (c) 35 (d) 34

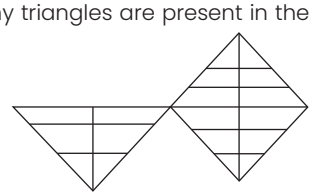
19. How many triangles are there in the figure given below?



SSC CHSL 4/7/2019 (Shift-1)

(a) 27 (b) 25 (c) 28 (d) 26

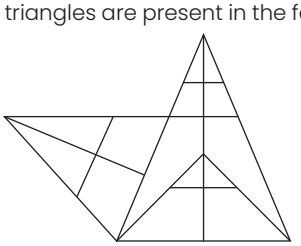
20. How many triangles are present in the following fair?



SSC CHSL 3/7/2019 (Shift-3)

(a) 27 (b) 29 (c) 31 (d) 30

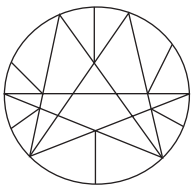
21. How many triangles are present in the following figure?



SSC CHSL 3/7/2019 (Shift-2)

(a) 25 (b) 26 (c) 27 (d) 28

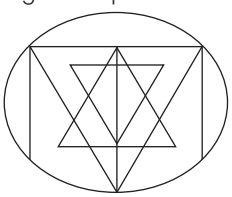
22. How many triangles are present in the following figure?



SSC CHSL 3/7/2019 (Shift-1)

(a) 24 (b) 26 (c) 30 (d) 28

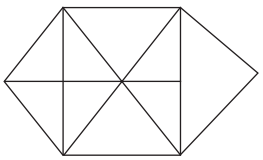
23. How many triangles are present in the following figure?



SSC CHSL 2/7/2019 (Shift-3)

(a) 23 (b) 27 (c) 25 (d) 29

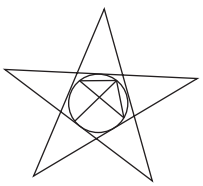
24. How many triangles are present in the following figure?



SSC CHSL 2/7/2019 (Shift-2)

(a) 20 (b) 16 (c) 18 (d) 14

25. How many triangles are present in the following figure?

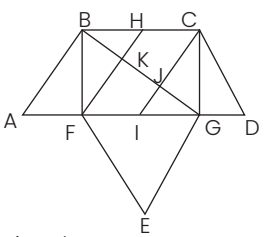


SSC CHSL 2/7/2019 (Shift-1)

(a) 14 (b) 13 (c) 10 (d) 12

SOLUTIONS

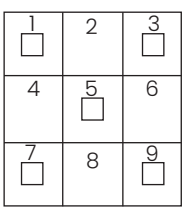
1.



Triangles are – ABF, BFK, BKH, IJG, JGC, CGD, EFG, BFH, ICG, ICD, ABG, BFG, BGC,

i.e. 13

2.



Squares → 1, 2, 3, 4, 5, ..., 9 ≡ 9

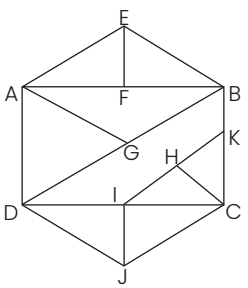
Combined Squares → (1, 2, 4, 5), (4, 5, 7, 8) (2, 3, 5, 6) (5, 6, 8, 9) ≡ 4

Small Squares ≡ 5

One big Square ≡ 1

Total Squares = 9 + 4 + 5 + 1 = 19

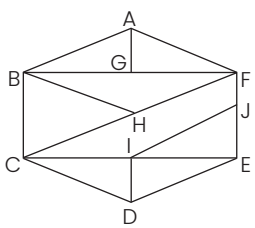
3.



Triangles are – AFE, BFE, AEB, ADG, ABG, ADB, CKH, CHI, CKI, CDB, DJI, CJI, DJC,

i.e. 13

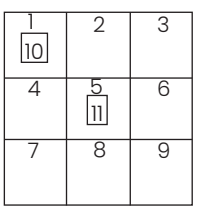
4.



Triangles are – AGB, AGF, ABF, BCH, BFH, BCF, EIJ, CDI, DEI, CDE, CEF

i.e. 11

5.



Small numbered squares

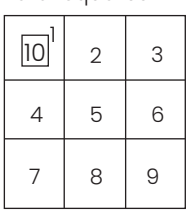
1, . . . , 11 ≡ 11

Combined squares = (1, 2, 4, 5), (4, 5, 7, 8) (2, 3, 5, 6) (5, 6, 8, 9) ≡ 4

One big Squares = 1

Total Squares = 11 + 4 + 1 = 16

6.



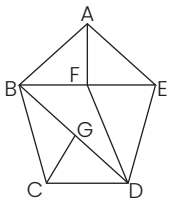
Small squares = 10

Combined squares = (1, 2, 4, 5), (4, 5, 7, 8) (2, 3, 5, 6) (5, 6, 8, 9) ≡ 4

One big Square = 1

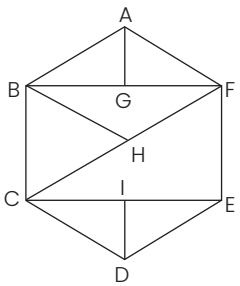
∴ Total Squares = 10 + 4 + 1 = 15

7.



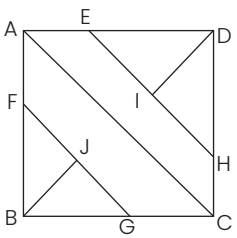
Triangles are – ABF, AFE, ABE, FED, BFD, BCG, CGD, BCD, BDE ≡ 9.

8. (a)



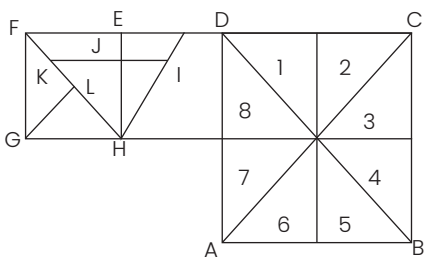
Triangles are – ABG, AGF, ABF, BCH, BHF, BCF, CEF, CID, DIE, CDE = 10.

9. (a)



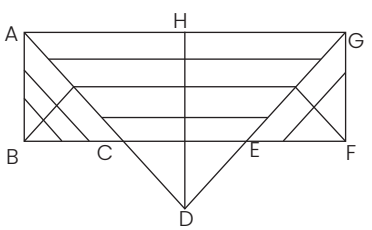
Triangles are –DIE, DIH, DEH, DAC, BCA, BGJ, BFJ, BGF

10.

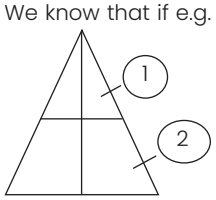


In ABCD, triangles = 8 × 2 = 16
and GKF, GKH, GHF, HKJ, HIJ, HKI, HFE, HDE, HFD = 9
Total triangles = 16 + 9 = 25

11.

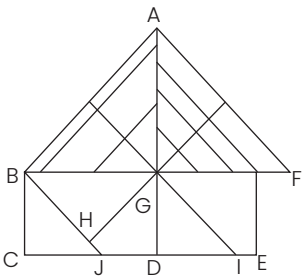


We know that if e.g.



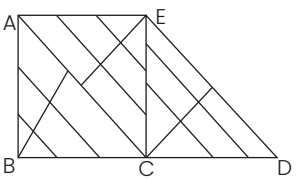
Then, Δ = 2 × 3 = 6
i.e. Base line × 3
In Δ FGE,
Base line = 2
⇒ Δ = 2 × 3 = 6
In Δ ABC,
Base line = 3
⇒ Δ = 3 × 3 = 9
In Δ DAG,
Base line = 5
Δ = 5 × 3 = 15
Total Δ = 6 + 9 + 15 = 30

12.



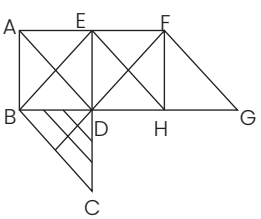
In Δ AGF,
Δ = 12 (= 4 × 3)
In Δ GBA,
Δ = 9 (= 3 × 3)
Also, BCJ, HGB, GDI = 3
Total Triangles = 12 + 9 + 3 = 24

13.



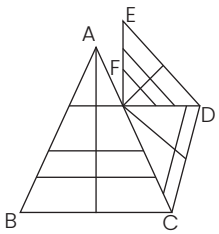
In Δ ABC = 3 × 3 = 9
In Δ AEC = 3 × 3 = 9
In Δ ECD = 3 × 3 = 9
∴ Total Triangles = 9 + 9 + 9 = 27

14.



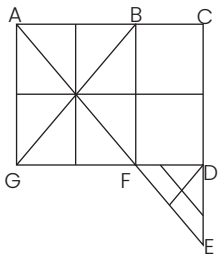
In Δ DBC, Δ = 3 × 3 = 9
Also, triangles are,
In AEDD, = 4 × 2 = 8
In EEHD = 4 × 2 = 8
and ADF, EFH, DFG, BCE, FHG ≡ 5
∴ Total Triangles = 9 + 8 + 8 + 5 = 30

15.



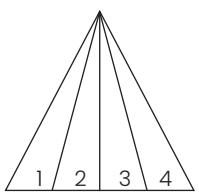
In Δ ABC, Δ = 4 × 3 = 12
In Δ FCD, Δ = 3 × 2 = 6
In Δ FED = 3 × 3 = 9
∴ Total Triangles = 12 + 6 + 9 = 27

16.

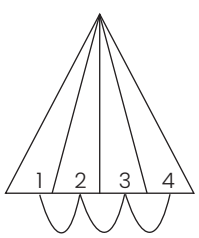


In Δ ABFG, Δ = 8 × 2 = 16
In Δ DFE, Δ = 3 × 2 = 6
Also Δ ACE
∴ Total triangles = 16 + 6 + 1 = 23

17.



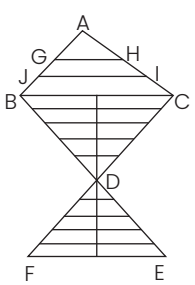
Triangles are 1, 2, 3, 4, (1 + 2), (2 + 3), (3 + 4), (1 + 2 + 3) (2 + 3 + 4) (1 + 2 + 3 + 4)
So, Δ is 10.
Short trick:



Δ = 1 + 2 + 3 + 4
= 10

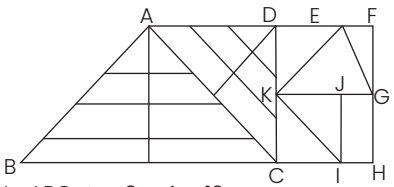
add these numbers

18.



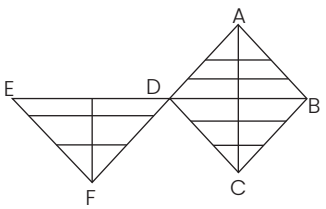
In DFE, Δ = 3 × 5 = 15
In DBC, Δ = 3 × 5 = 15
also, AGH, AJI, ABC = 3
∴ Total Triangles = 15 + 15 + 3 = 33

19.



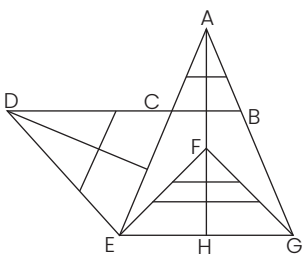
In ABC, Δ = 3 × 4 = 12
In ADC,
Δ = 3 × 3 = 9 and DEK, EFG, KEG, KCI, KIJ = 5
∴ Total Triangles = 12 + 9 + 5 = 26

20.



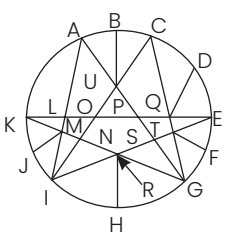
In EFD, Δ = 3 × 3 = 9
In ADB, Δ = 3 × 3 = 9
In DBC, Δ = 3 × 3 = 9
and ADC, ABC
Total Triangles = 9 + 9 + 9 + 2 = 29

21.



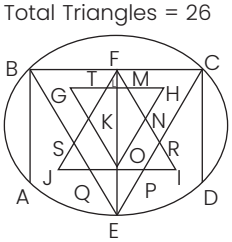
In ACB, Δ = 3 × 2 = 6
In FEG, Δ = 3 × 3 = 9
In DEC, Δ = 3 × 2 = 6
and AEG, AFE, AFG, AHE, AHG
∴ Total Triangles = 6 + 9 + 6 + 5 = 26

22.



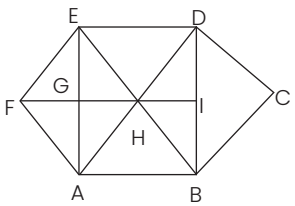
Triangles are – KLM, IMN, NIR, GSR, GSI, IMR, GRT, ETQ, OUP, ALP, OCQ, ASI, CGN, KNO, CTI, GIN, KER, LIE, LOI, IUS, KGP, KGQ, CGU, IOA, GUN, EPS
Total Triangles = 26

23.



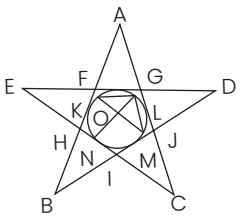
Triangles are FLT, FLM, FOJ, FOI, SJQ, RIP, KJO, NOI, EFB, EFC, EOQ, EOP, OGL, OHL, OKF, ONF, BFS, FRC, GTK, MHN, BFS, CFR, FJI, EBC, OGH = 25

24.



Triangles are FGE, FGA, FEA, EGH, AGH, HEA, EFH, AFH, EHD, AHB, HDI, HIB, HDB, EAD, ABD, EDB, EAB, DBC = 18

25.

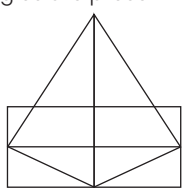


Triangles are AFG, GDJ, IJC, BHI, EHF, ACK, DFB, CHA, BDF, ECG, LMD, KLO, LKM = 13

EXERCISE 18C

For SSC CGL & CPO Exams

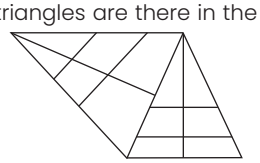
1. How many triangles are present in the following figure?



SSC CGL 13/06/2019 (Shift-3)

(a) 15 (b) 12 (c) 10 (d) 9

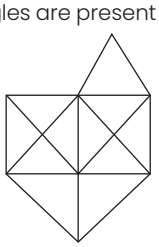
2. How many triangles are there in the following figure?



SSC CGL 13/06/2019 (Shift-2)

(a) 20 (b) 18 (c) 16 (d) 22

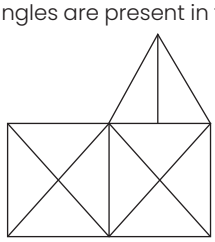
3. How many triangles are present in the following figure?



SSC CGL 13/06/2019 (Shift-1)

(a) 26 (b) 22 (c) 25 (d) 24

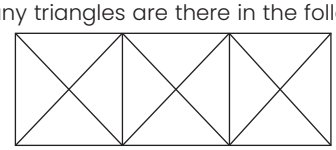
4. How many triangles are present in the following figure?



SSC CGL 12/06/2019 (Shift-3)

(a) 21 (b) 23 (c) 19 (d) 20

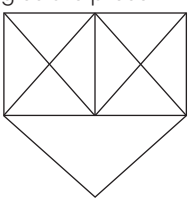
5. How many triangles are there in the following figure?



SSC CGL 12/06/2019 (Shift-2)

(a) 30 (b) 28 (c) 24 (d) 26

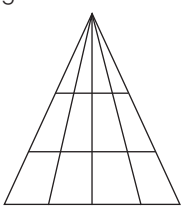
6. How many triangles are present in the following figure?



SSC CGL 12/06/2019 (Shift-1)

(a) 18 (b) 19 (c) 20 (d) 17

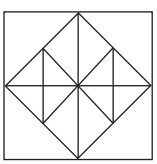
7. How many triangles are there in the given figure?



SSC CGL 11/06/2019 (Shift-3)

(a) 30 (b) 24 (c) 31 (d) 36

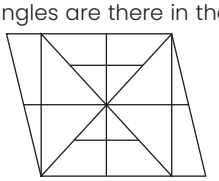
8. How many triangles are there in the following figure?



SSC CGL 11/06/2019 (Shift-2)

(a) 30 (b) 28 (c) 32 (d) 34

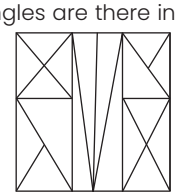
9. How many triangles are there in the following figure?



SSC CGL 11/06/2019 (Shift-1)

(a) 16 (b) 30 (c) 32 (d) 22

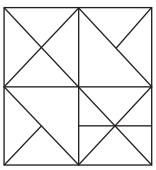
10. How many triangles are there in the following figure?



SSC CGL 10/06/2019 (Shift-3)

(a) 33 (b) 18 (c) 31 (d) 29

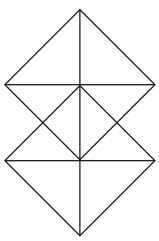
11. How many triangles are there in the following figure?



SSC CGL 10/06/2019 (Shift-2)

(a) 34 (b) 32 (c) 36 (d) 24

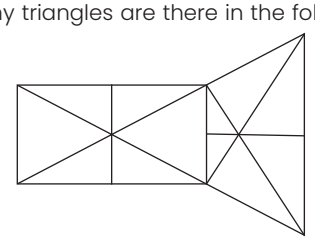
12. How many triangles are there in the following figure?



SSC CGL 10/06/2019 (Shift-1)

(a) 14 (b) 24 (c) 22 (d) 18

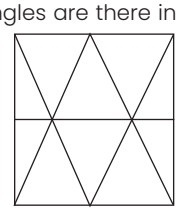
13. How many triangles are there in the following figure?



SSC CGL 07/06/2019 (Shift-3)

(a) 27 (b) 29 (c) 31 (d) 25

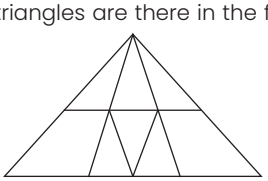
14. How many triangles are there in the following figure?



SSC CGL 07/06/2019 (Shift-2)

(a) 18 (b) 20 (c) 16 (d) 14

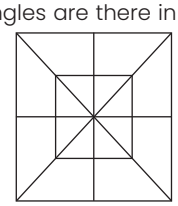
15. How many triangles are there in the following figure?



SSC CGL 07/06/2019 (Shift-1)

(a) 14 (b) 13 (c) 17 (d) 15

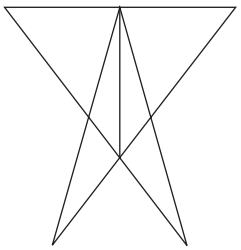
16. How many triangles are there in the following figure?



SSC CGL 06/06/2019 (Shift-3)

(a) 32 (b) 24 (c) 28 (d) 36

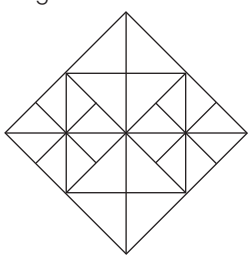
17. How many triangles are there in the following figure?



SSC CGL 06/06/2019 (Shift-2)

(a) 12 (b) 13 (c) 11 (d) 15

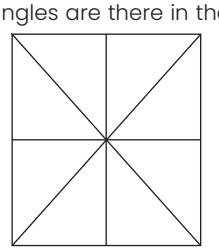
18. How many triangles are there in the following figure?



SSC CGL 06/06/2019 (Shift-1)

(a) 12 (b) 18 (c) 16 (d) 14

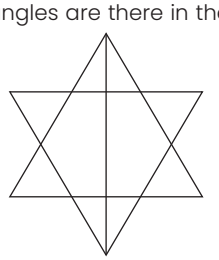
19. How many triangles are there in the following figure?



SSC CGL 04/06/2019 (Shift-3)

(a) 18 (b) 12 (c) 14 (d) 16

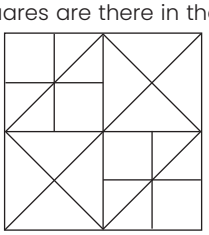
20. How many triangles are there in the following figure?



SSC CGL 04/06/2019 (Shift-2)

(a) 14 (b) 18 (c) 20 (d) 16

21. How many squares are there in the following figure?

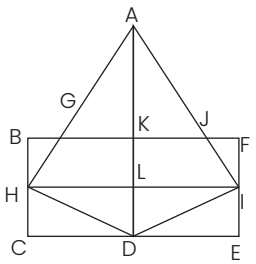


SSC CGL 04/06/2019 (Shift-1)

(a) 12 (b) 16 (c) 13 (d) 14

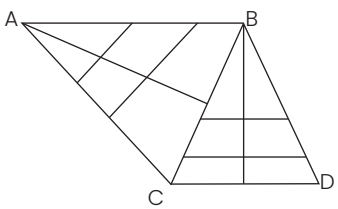
SOLUTION

1.



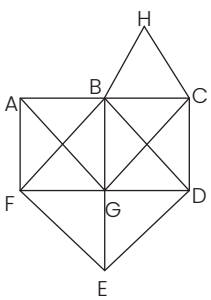
Triangles are AGK, AKJ, AGJ, ALH, ALI, AHI, HLD, ILD, HDI, AHD, AIE, BGH, HCD, JFI, IED = 15

2.



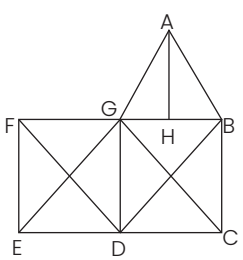
In BCD, $\Delta = 3 \times 3 = 9$
In ACB, $\Delta = 3 \times 3 = 9$
Total $\Delta = 18$

3.



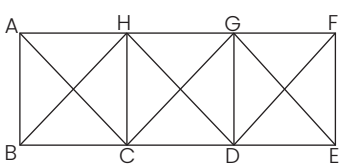
In ABGF, $\Delta = 4 \times 2 = 8$
In BCDG, $\Delta = 4 \times 2 = 8$
and FDB, AGC, BHC, FGE, DGE, FED, FBE, DBE = 8
Total Triangles = 8 + 8 + 8 = 24

4.



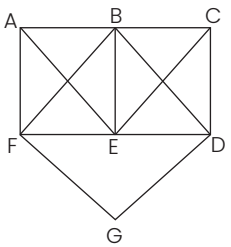
In FGDE, $\Delta = 4 \times 2 = 8$
In GBCD, $\Delta = 4 \times 2 = 8$
and AGH, AHB, AGB, FDB, EGC = 5
Total Triangles = 8 + 8 + 5 = 21

5.



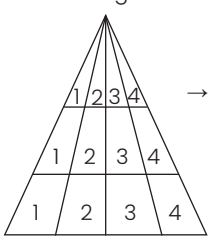
In AHCB, $\Delta = 4 \times 2 = 8$
In HGDC, $\Delta = 4 \times 2 = 8$
In GFED, $\Delta = 4 \times 2 = 8$
and BHD, CGE, ACG, HDF = 4
Total Triangles = 8 + 8 + 8 + 4 = 28

6.



In ABEF, $\Delta = 4 \times 2 = 8$
In BCDE, $\Delta = 4 \times 2 = 8$
and FBD, EEC, FGD = 3
Total Triangles = 8 + 8 + 3 = 19

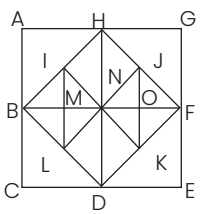
7.



→ 1 + 2 + 3 + 4 = 10
→ 1 + 2 + 3 + 4 = 10
→ 1 + 2 + 3 + 4 = 10

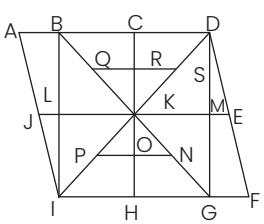
Total triangles = 10 + 10 + 10 = 30

8.



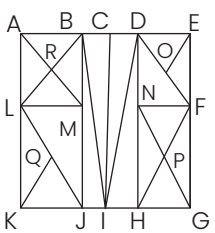
In AHNB, ABH, NHB, NHI, NIM, NIB, BIM = 6
Similarly, HGFN, FEDN, DCBN = 6 + 6 + 6
and BHD, FHD, BHI, BDF, BIL, JFK, NIL, NJK = 8
Total triangles = 6 + 6 + 6 + 6 + 8 = 32

9.



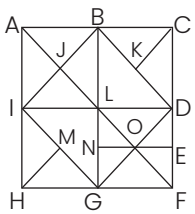
Triangles are – KRS, KRQ, KCD, KCB, KON, KOP, KHG, KHI, KQS, KBD, KPN, KIG, KLB, KLI, KMD, KMG, KLI, KGD, BID, GID, BDG, BIG, ILJ, IBA, DME, DGF, IKJ, DKE, IDF, IDA = 30

10.



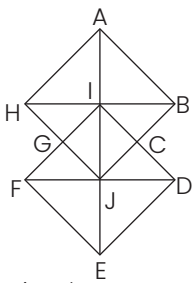
In ABML, $\Delta = 4 \times 2 = 8$
In NFGH, $\Delta = 4 \times 2 = 8$
and LQK, KQJ, LKJ, LMJ, DOE, FOE, DEF, DNF, BIC, DIC, BID, JBI, IDH, BLJ, DFH = 15
Total Triangles = 8 + 8 + 15 = 31

11.



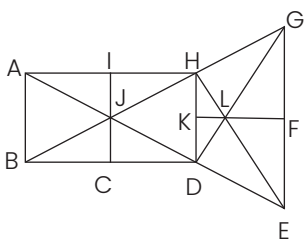
Triangles are ABJ, JBL, JLI, JIA, ABL, AIL, ABI, LBI, BCK, CKD, BCD, BLD, IHM, HMG, IHG, LIG, LOD, GOF, LNO, NOG, LOG, DOE, EOF, DOF, GFD, GLD, DLF, GLF, BIG, BDG, BID, IGD = 32

12.



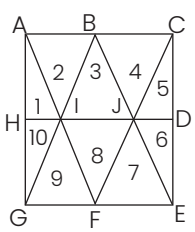
Triangles are – AIH, AIB, HTJ, BIJ, AHJ, ABJ, AHB, JHB, GHI, BCI, GIJ, CIJ, IFJ, IDJ, FJE, DJE, FIE, DIE, IFD, EFD, GJF, CID = 22

13.



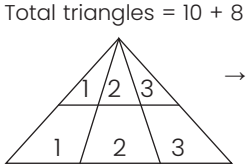
Triangles are – AIJ, HIJ, HJD, DJC, CJB, BJA, AJH, BJD, BHD, BAD, AHD, ABH, HLK, KLD, LHG, GLF, FLE, DLE, GDE, GDH, GLE, HLD, HGE, HDE, JGE, BGD, JGD, HJE, AHE = 29

14.



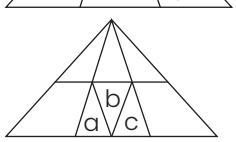
Single numbered triangles = 10
and AIG, CJE, AGB, CFE, GAF, CBE, GBE, AFC
Total triangles = 10 + 8 = 18

15.



→ 1 + 2 + 3 = 6 = Δ

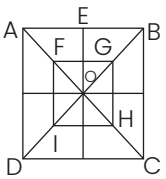
→ 1 + 2 + 3 = 6 = Δ



→ Δ = a, b, c = 3

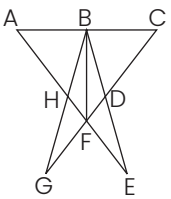
Total triangles = 6 + 6 + 3 = 15

16.



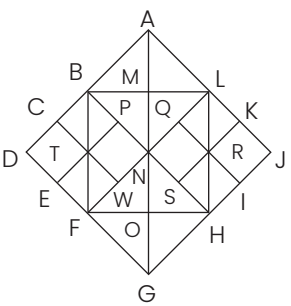
In AOD, $\Delta = 3 \times 2 = 6$
Similarly, In AOB, BOC, COD = 6 + 6 + 6
and ADB, CDB, FIG, HIG, ACB, ACD, FHG, FHI = 8
∴ Total triangles = 6 + 6 + 6 + 6 + 8 = 32

17.



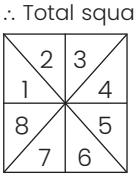
Triangles are – ABH, BHF, BFD, BDC, HFG, DFE, FBG, FBE, BAF, BCF, AFC = 11

18.



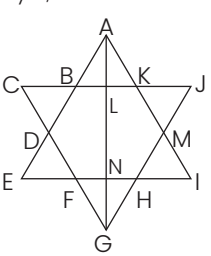
In BDFN, □ → 5
Similarly, In LJHN, □ → 5
and NFGH, ABNL, BLHF, ADGJ
∴ Total squares = 5 + 5 + 4 = 14

19.



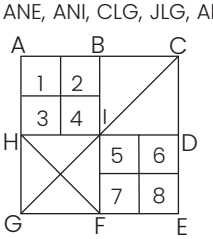
In this type of figure count single triangle and multiply by 2, i.e. 8 × 2 = 16

20.



Triangles are – ABL, AKL, KJM, MIH, NHG, FNG, DEF, CDB, ANE, ANI, CLG, JLG, AEI, GCJ = 14

21.



Small squares → 8
and ABIH, BCDI, IDEF, HIGP, ACEG = 13