

GROUPED DATA (वर्गीकृत आंकड़े)

coaching center

Mode = 67 cm

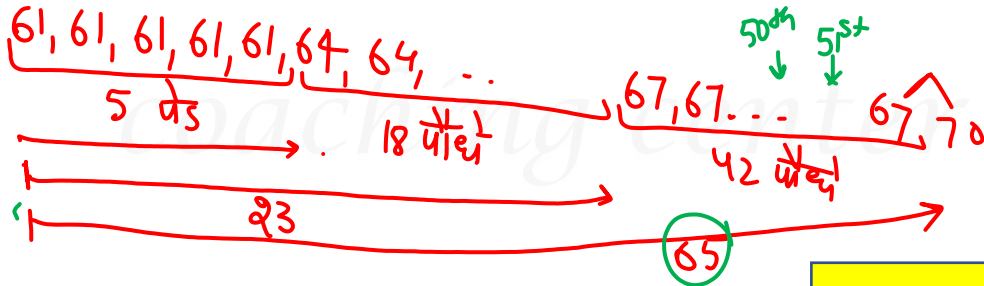
Median = 67 cm

Mean = 67.45

$$\frac{18+27}{100} = \frac{45}{100}$$

Frequency distribution of Plants according to their height: *संख्या आवृत्ति*
पौधों की ऊँचाई का आवृत्ति वितरण:

Height (in cm)	Number of Plants
61 -6	5
64 -3	18
67 0	42
70 +3	27
73 +6	8



Frequency distribution of students according to age:

Mode = 17yr, 18yr

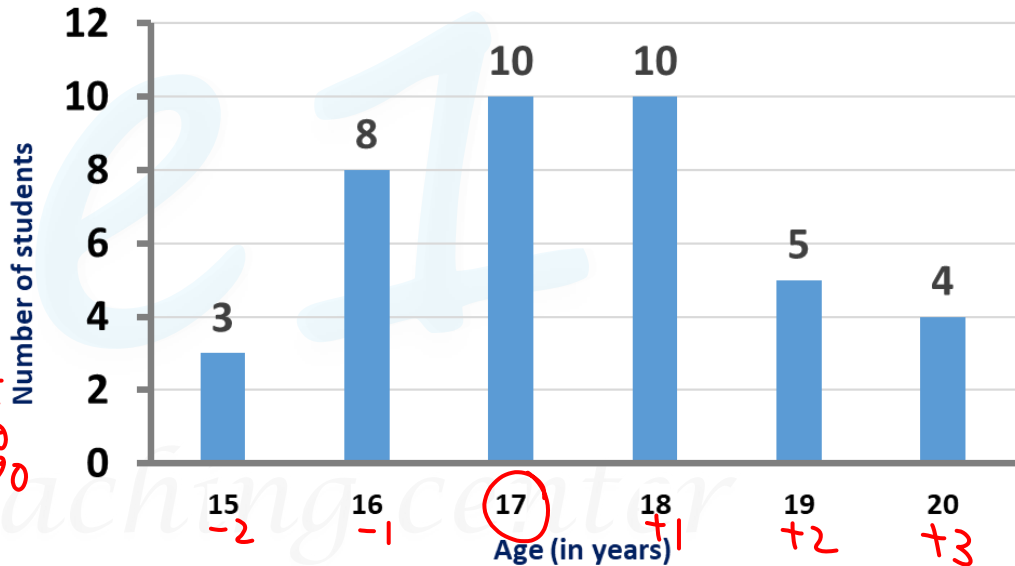
Median = 17yrs

$$\text{Mean} = \frac{\text{Sum}}{\text{No}}$$

$$= 17 + .45$$

$$\frac{2+4+12}{40} = \frac{18}{40} = \frac{9}{20}$$

छात्रों की आयु का बारम्बारता वितरण:



23. Study the given table and answer the question that follows. The daily wages of 50 employees of a company is shown in the table. Select the correct statement from the following options.

निम्नलिखित तालिका का अध्ययन करें और आगे दिए गए प्रश्न का उत्तर दें। एक कंपनी के 50 कर्मचारियों का दैनिक वेतन नीचे की तालिका में दिखाया गया है। निम्नलिखित विकल्पों में से सही कथन का चयन करें।

Daily wages Interval	Frequency (No. of Employee)
80-90	9
90-100	3
100-110	31
110-120	5
120-130	2

$$105 - 2.4 = 102.6$$

$$\frac{-140 + 20}{1} = -2.4$$

- a) The average wage of the employees lie between 80-90.
- b) The average wage of the employees lie between 110-120.
- c) The average wage of the employees lie between 100-110.
- d) The average wage of the employees lie between 90-100.

Stats (grouped mean)

$$35 - 1.6 = 33.4$$

$$-60 - 20 = -80$$

$$50$$

Scores	Frequencies
0-10 5	-30 2
10-20 15	-20 4
20-30 25	-10 12
30-40 (35)	21
40-50	+10 6
50-60	+20 3
60-70	+30 2

24. Calculate the mean from the following table.

निम्न तालिका से माध्य की गणना कीजिए।

~~a) 33.4~~

b) 32.6

c) 35.8

d) 34.2

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25. In the given histogram, what is the mean height of all students correct to one decimal place?

दिए गए आयतचित्र में, छात्रों की माध्य ऊँचाई क्या है?

a) 116.8

~~b) 114.7~~

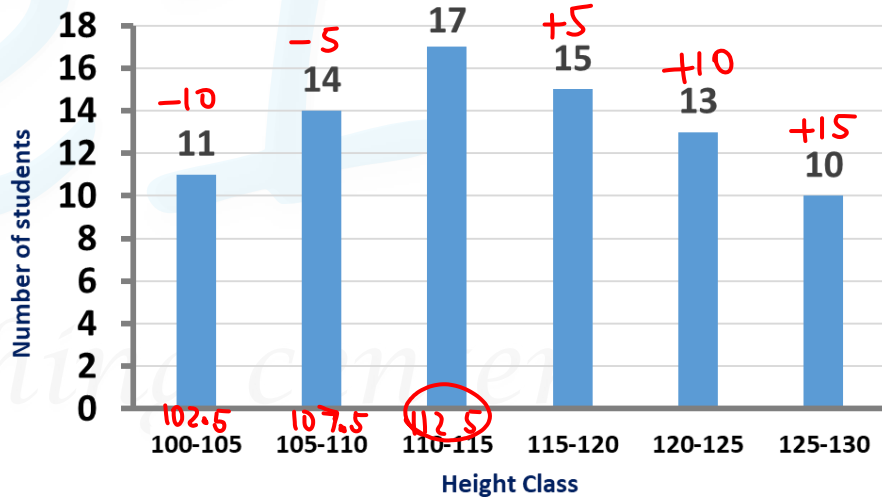
c) 116.2

d) 115.6

$$\begin{array}{r} 112.5 + \\ 2.18 \\ \hline 114.68 \end{array}$$

$$+5 + 20 + 150$$

$$= \frac{175}{80} = 2.1875$$



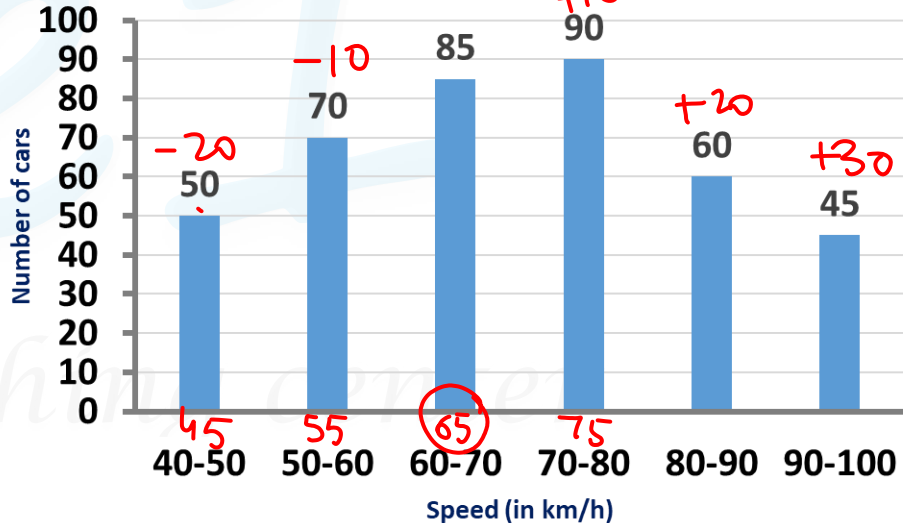
$$65 + 4.37 = 69.37$$

$$\begin{array}{r} 200 \\ 200 \\ \hline 1350 \\ \hline 175 \\ \hline 400 \\ \hline \end{array} = 43.75$$

26. In the given histogram, what is the mean speed of cars (in km/h) to nearest whole number?

दिए गए आयतचित्र में, निकटतम पूर्ण संख्या में, कारों की माध्य गति (किमी / घंटा में) क्या है?

- ~~a) 69~~ b) 70 c) 72 d) 71



$$\begin{array}{r} 37.5 \\ 13.125 \\ \hline 50.625 \end{array}$$

$$\begin{array}{r} 240 \\ 720 \\ \hline 720 \\ \hline 1680 \\ \hline 128 \\ \hline 16 \\ \hline 8 \end{array}$$

$$\frac{105}{8} = 13\frac{1}{8}$$

$$105 - 210 = -105$$

27. In the given histogram, what is mean marks of the students, correct to one decimal place?

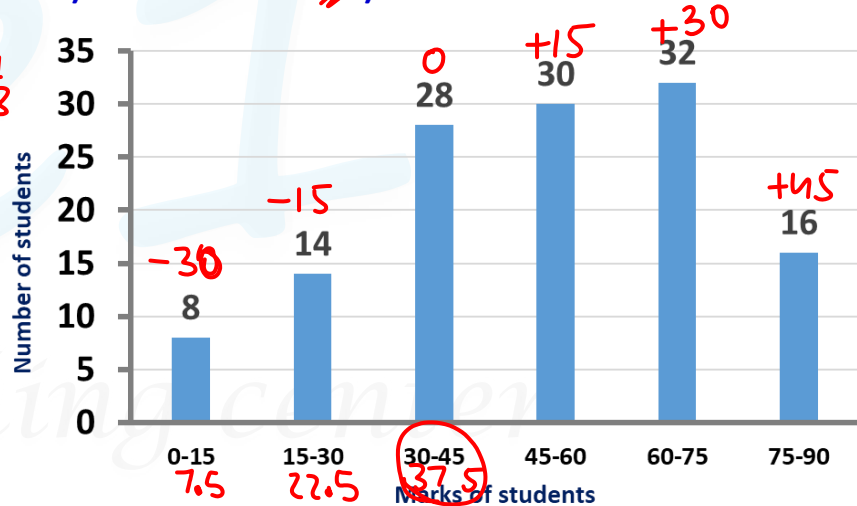
दिए गए आयतचित्र में, छात्रों के माध्य अंक क्या हैं?

a) 51.2

b) 53.5

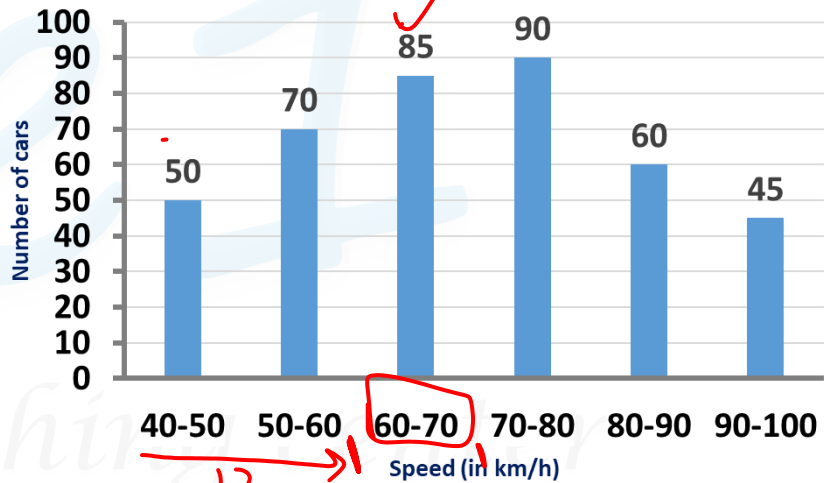
c) 52.7

~~a) 50.6~~



28. In the given histogram, in which class interval, the **median class** lie?
 दिए गए आयतचित्र में, माध्यिका किस वर्गतराल में स्थित है?

- a) 70 – 80
- ~~b) 60 – 70~~
- c) 80 – 90
- d) 50 – 60



Handwritten calculations for finding the median class:

$$\frac{400}{2} = \frac{200 + 201}{2}$$

50
120
205 ←
295
355
400

Handwritten annotations on the histogram:

- A red box around the 60-70 interval on the x-axis.
- A red arrow pointing from the 60-70 interval to the value 120.
- A red arrow pointing from the 60-70 interval to the value 205.
- The Hindi word 'दो' (two) written below the arrows.

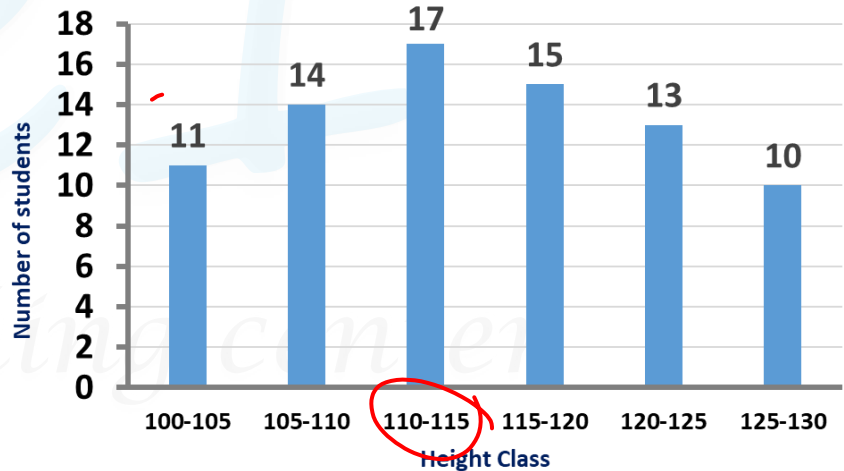
29. In the given histogram, in which class does the median height of the students lie?

दिए गए आयतचित्र में, छात्रों की माध्यिका ऊँचाई किस वर्ग में स्थित है?

- a) 120 – 125 b) 105 – 110
c) 115 – 120 ~~d) 110 – 115~~

11
25
42
57
70
80

$$\frac{80}{2} = \frac{110^{\text{th}} + 41^{\text{st}}}{2}$$



30. In the given histogram, which class is the median class?

दिए गए आयतचित्र में, कोनसा वर्ग माध्यिका वर्ग है?

a) 150 – 155

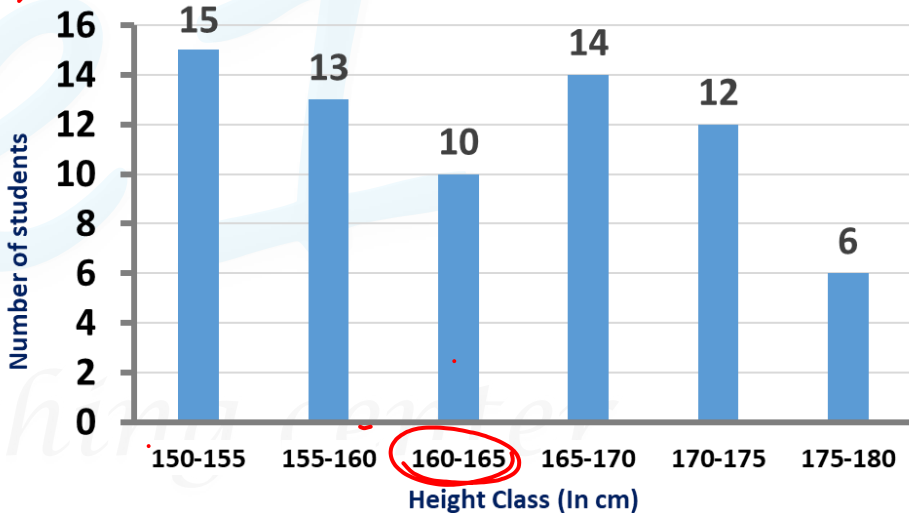
b) 155 – 160

~~c) 160 – 165~~

d) 165 – 175

15
28
38
52
64
70

$$\frac{70}{2} = \frac{35 + 36}{2}$$



31. In the given histogram, in which class interval, the median marks lie?

दिए गए आयतचित्र में, माध्यिका अंक किस वर्ग में स्थित है?

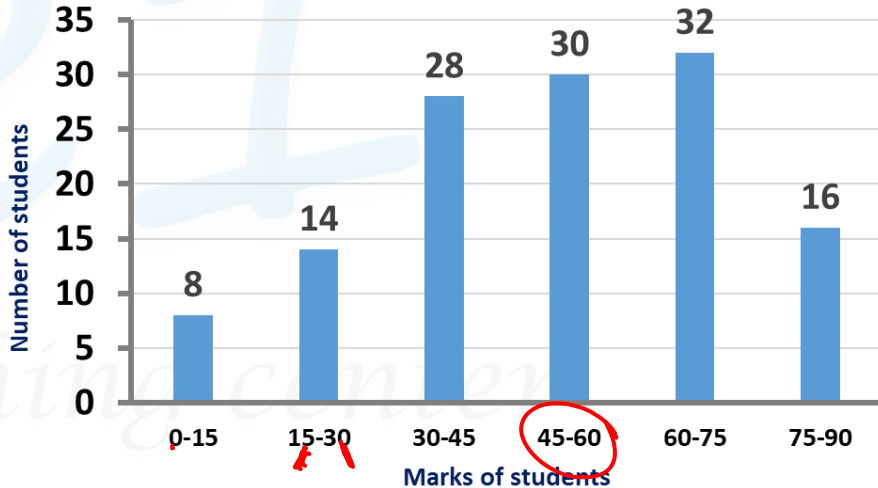
a) 30 – 45

~~b) 45 – 60~~

c) 60 – 75

d) 15 – 30

8
22
50
80 ✓
112
128



Terminology:

1. Class interval (वर्ग अंतराल)
2. Width of class/class height (वर्ग की चौड़ाई)
3. Frequency (बारम्बारता)
4. Upper limit (उपरी सीमा)
5. Lower limit (निम्न सीमा)
6. Median class (मध्यिका वर्ग)
7. Modal class (बहुलक वर्ग)

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Typical formula based questions

Mean ✓

Median class

Modal class

Median ✓

Mode ✓

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All the measures in the grouped data

lower \uparrow \rightarrow of preceding class

$$\text{Median} = l + \frac{\left(\frac{n}{2} - cf\right)}{f} \times h$$

$$= 110 + \frac{(40 - 25)}{17} \times 5$$

$$= 110 + \frac{15}{17} \times 5 = 110 + 4\frac{7}{17} = 114\frac{7}{17}$$

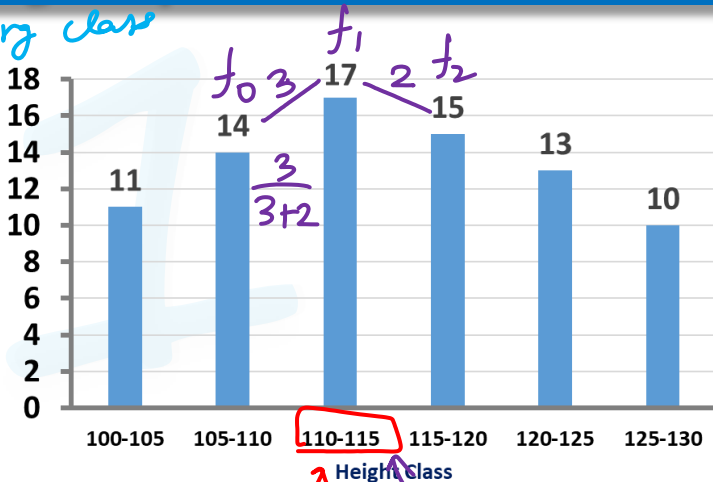
$$\text{Mode} = l + \left(\frac{f_1 - f_0}{2f_1 - f_0 - f_2}\right) \times h$$

$$= 110 + \frac{f_1 - f_0}{(f_1 - f_0) + (f_1 - f_2)} \times h$$

$$= 110 + \frac{3}{5} \times 5 = 113$$

11
25
42 ✓
57
70
80

Number of students



Median class

Modal class

empirical formula

$$1 \text{ Mode} + 2 \text{ Mean} = 3 \text{ Median}$$



$$1Md + 2Mn = 3Mdn$$

~~$$\text{Mode} = 3Mdn - 2Mn$$~~

~~$$\text{Mean} = \frac{3Mdn - \text{Mode}}{2}$$~~

~~$$\text{Median} = \frac{Md + 2Mn}{3}$$~~

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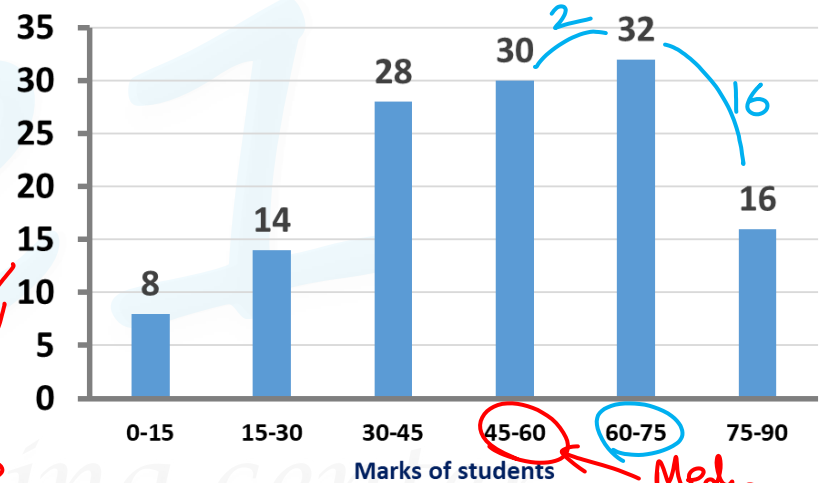
32. In the given histogram, find the Median and Mode.

Median = $l + \frac{\frac{n}{2} - Cf}{f} \times h$ दिए गए आयतचित्र में, माध्यिका और बहुलक बताइए.

$$\begin{aligned} \text{Median} &= 45 + \frac{30 - 50}{2} \times 15 \\ &= 52 \end{aligned}$$

$$\begin{aligned} \text{Mode} &= 60 + \frac{2}{18} \times 15 \\ &= 60 + 2\frac{2}{3} \\ &= 61\frac{2}{3} \end{aligned}$$

8
22
50
80
112
128



$$\frac{128}{2} = 64$$



33. Find the mode for the given distribution (rounded off to two decimal places).

$$\begin{aligned} \text{Mode} &= 25 + \frac{2}{3} \times 5 \\ &= 25 + 3\frac{1}{3} \\ &= 28\frac{1}{3} \end{aligned}$$

दिए गए बंटन का बहुलक ज्ञात कीजिये (दो दशमलव स्थान तक पूर्णांकित)

Modal class

CLASS INTERVAL (वर्ग अंतराल)	5-10	10-15	15-20	20-25	25-30	30-35
FREQUENCY (बारम्बारता)	8	7	6	9	11	10

- a) 30.33
- c) 35.25

- b) 40.25
- d) 28.33

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34. For a sample data, mean = 60 and median = 48.

For this distribution, the mode is:

एक नमूना आंकड़ों का माध्य = 60 और माध्यिका = 48 है। इस बंटन का बहुलक ज्ञात कीजिये?

a) 36

b) 18

c) 48

~~d) 24~~

$$1Md + 2Mn = 3Md$$

$$\underbrace{Md}_{24} + 120 = 144$$

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35. In a frequency distribution, ogives are graphical representation of

एक आवृत्ति वितरण में, तोरण चित्र क्या दर्शाते हैं

a) frequency / आवृत्ति

b) relative frequency / साक्षेप आवृत्ति

~~c) cumulative frequency / संचयी आवृत्ति~~

d) raw data / कच्चा आंकड़ा



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