

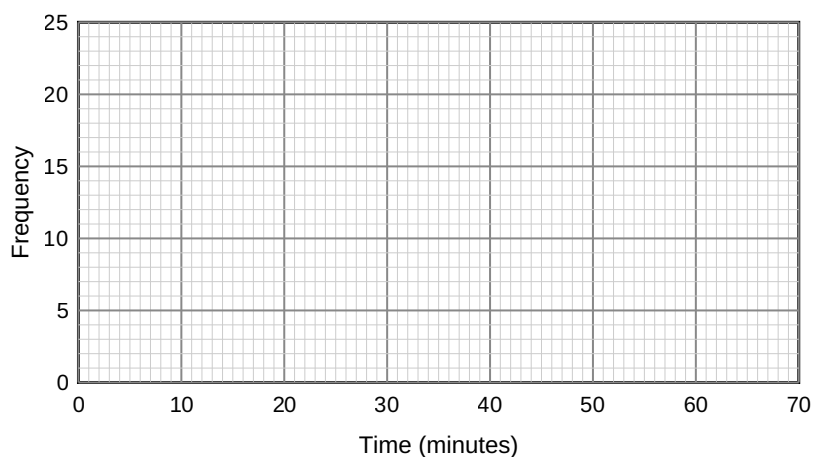
Frequency Polygons Mastery

Practice Worksheet (Edexcel GCSE 1MA1 Style)

I DO

The frequency table gives information about the times it took some students to get to school one day.

Time (t minutes)	Frequency
$0 < t \leq 10$	14
$10 < t \leq 20$	18
$20 < t \leq 30$	4
$30 < t \leq 40$	6
$40 < t \leq 50$	6
$50 < t \leq 60$	2



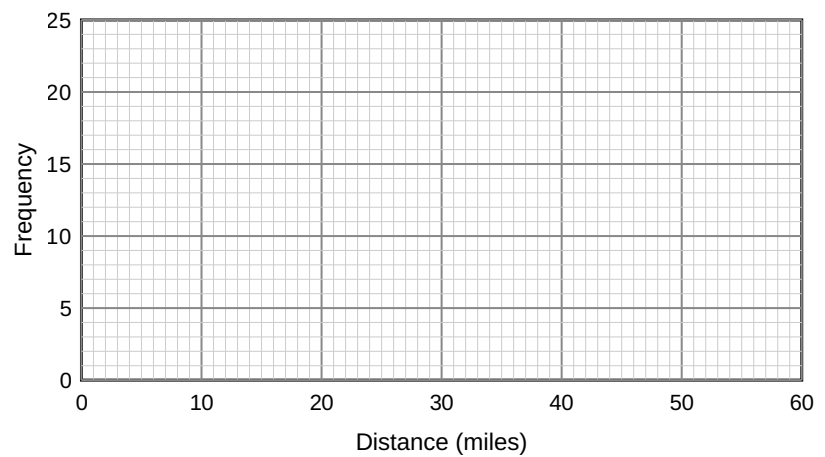
(a) Draw a frequency polygon for this information.

(b) Write down the modal class interval.

WE DO

The frequency table shows information about the distances some workers travel to an office.

Distance (d miles)	Frequency
$0 < d \leq 10$	8
$10 < d \leq 20$	15
$20 < d \leq 30$	22
$30 < d \leq 40$	10
$40 < d \leq 50$	5



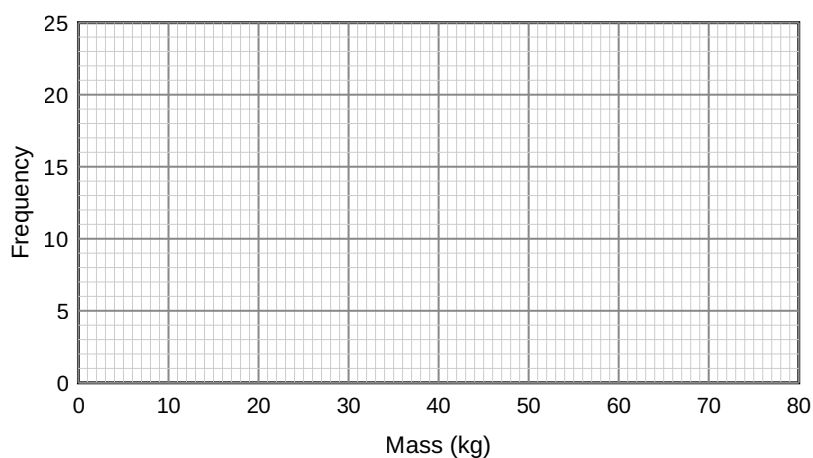
(a) Draw a frequency polygon for this information.

(b) Write down the modal class interval.

YOU DO 1

The frequency table gives information about the masses of 58 parcels.

Mass (m kg)	Frequency
$20 < m \leq 30$	6
$30 < m \leq 40$	16
$40 < m \leq 50$	20
$50 < m \leq 60$	12
$60 < m \leq 70$	4



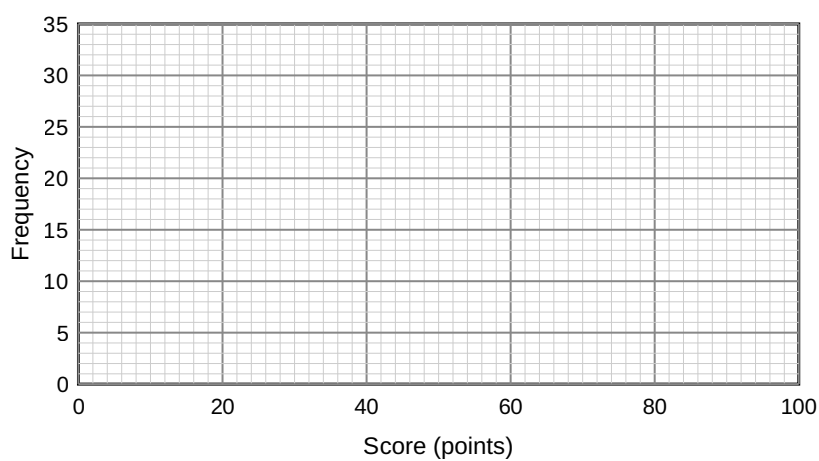
(a) Draw a frequency polygon for this information.

(b) Write down the modal class interval.

YOU DO 2

The frequency table gives information about the scores of 86 students in a test.

Score (s points)	Frequency
$0 < s \leq 20$	12
$20 < s \leq 40$	30
$40 < s \leq 60$	24
$60 < s \leq 80$	14
$80 < s \leq 100$	6



(a) Draw a frequency polygon for this information.

(b) Write down the modal class interval.

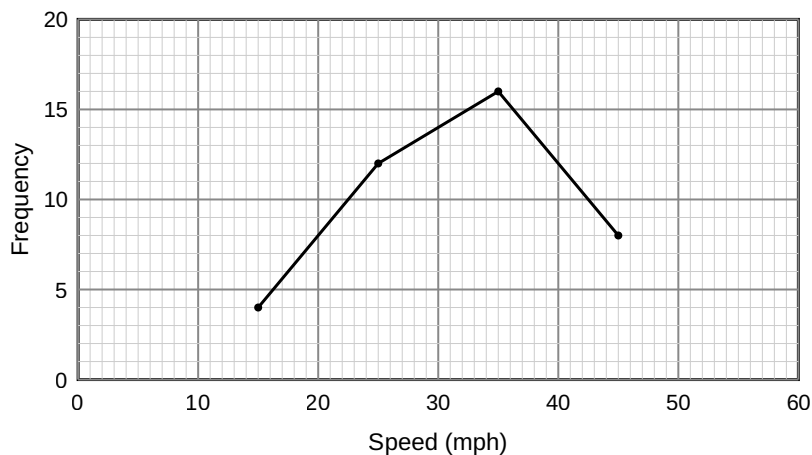
CHALLENGE

A frequency polygon is shown below for the speeds, v mph, of 40 cars.

(a) Write down the modal class interval.

(b) Work out an estimate for the mean speed.

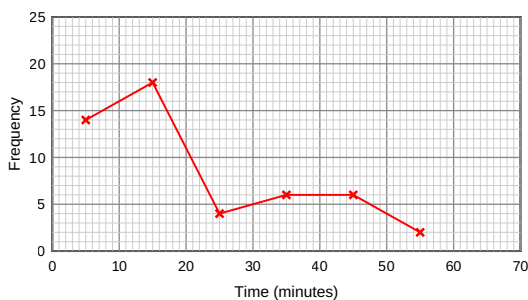
(Hint: Construct a frequency table first)

**ANSWERS & WORKED SOLUTIONS****I Do**

Step 1: Find the midpoints of each class interval: 5, 15, 25, 35, 45, 55.

Step 2: Plot these coordinates: (5,14), (15,18), (25,4), (35,6), (45,6), (55,2) and join with straight lines.

Step 3: The modal class is the interval with the highest frequency (18). **Answer:** $10 < t \leq 20$

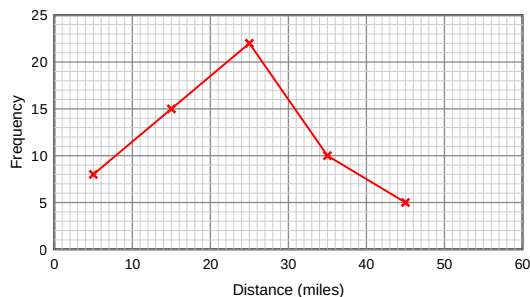


We Do

Step 1: Midpoints: 5, 15, 25, 35, 45.

Step 2: Plot coordinates: (5,8), (15,15), (25,22), (35,10), (45,5) and join with straight lines.

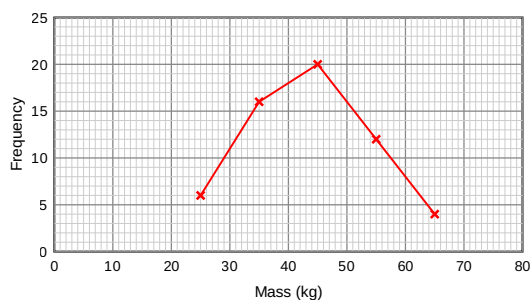
Step 3: Highest frequency is 22. **Answer:** $20 < d \leq 30$

**You Do 1**

Step 1: Midpoints: 25, 35, 45, 55, 65.

Step 2: Plot points and join: (25,6), (35,16), (45,20), (55,12), (65,4).

Step 3: Highest frequency is 20. **Answer:** $40 < m \leq 50$

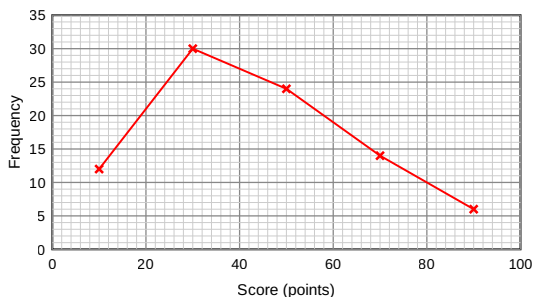


You Do 2

Step 1: Midpoints: 10, 30, 50, 70, 90.

Step 2: Plot points and join: (10,12), (30,30), (50,24), (70,14), (90,6).

Step 3: Highest frequency is 30. **Answer:** $20 < s \leq 40$

**Challenge**

Step 1: Read the points from the graph to reconstruct the frequency table. The points are at midpoints: (15, 4), (25, 12), (35, 16), (45, 8).

Step 2: The class intervals are: $10 < v \leq 20$ ($f=4$), $20 < v \leq 30$ ($f=12$), $30 < v \leq 40$ ($f=16$), $40 < v \leq 50$ ($f=8$).

Step 3: (a) The highest frequency is 16. The modal class is $30 < v \leq 40$.

Step 4: (b) Estimate the mean by multiplying each midpoint by its frequency: $(15 \times 4) + (25 \times 12) + (35 \times 16) + (45 \times 8) = 60 + 300 + 560 + 360 = 1280$.

Step 5: Divide the total by the number of cars (40): $1280 \div 40 = 32$. **Answer:** 32 mph