



هيئة جودة التعليم والتدريب
Education & Training Quality Authority

Mathematical Skills – Grade 12

Dealing with Data

- Extracting and Processing data
- Identifying similar data
- Choosing and working with models

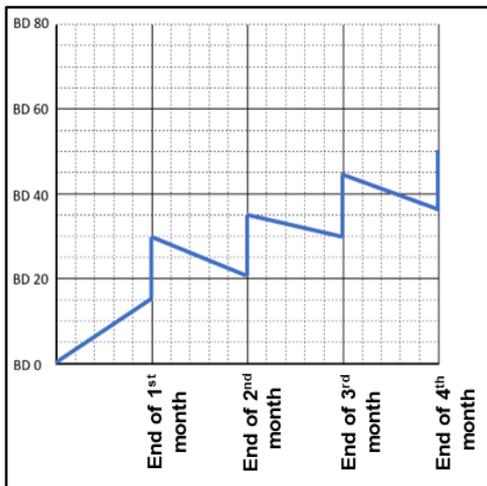
Practice Items

- Sample of Practice Items -

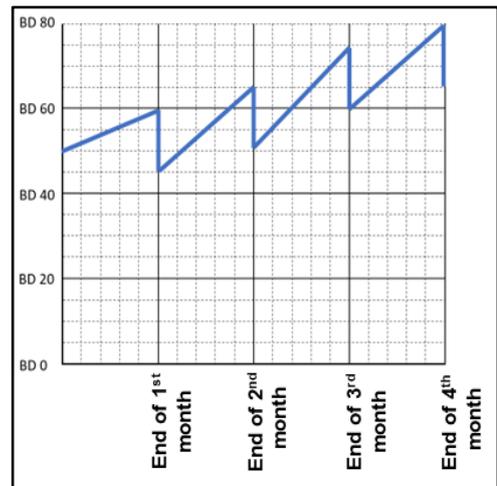
- 1 Ammar started his small business with a capital of BD 50. At the beginning of each new month, he buys some essential supplies for his business with a fixed budget of BD 15. During the month, he sells his products and makes profits.

Which of the following graphs can represent Ammar's business funds during the first four months of the business 's inception?

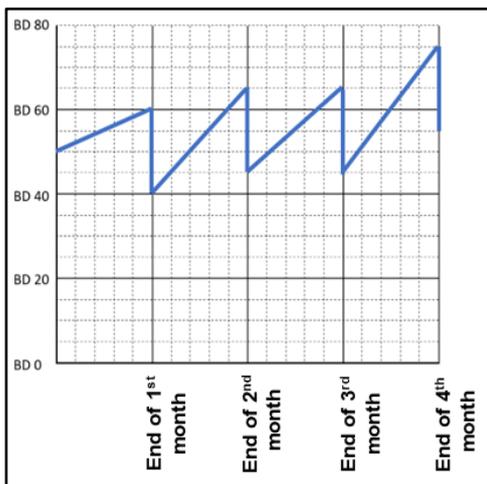
A



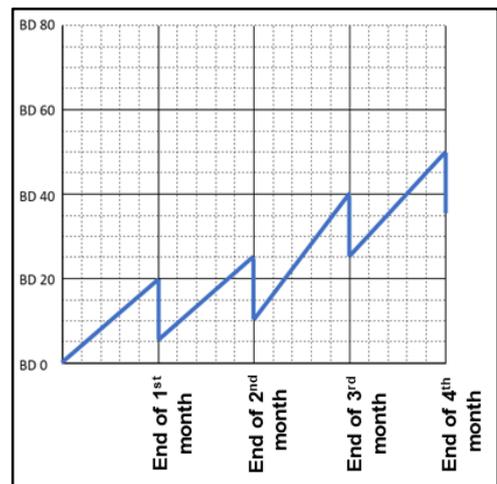
B



C



D

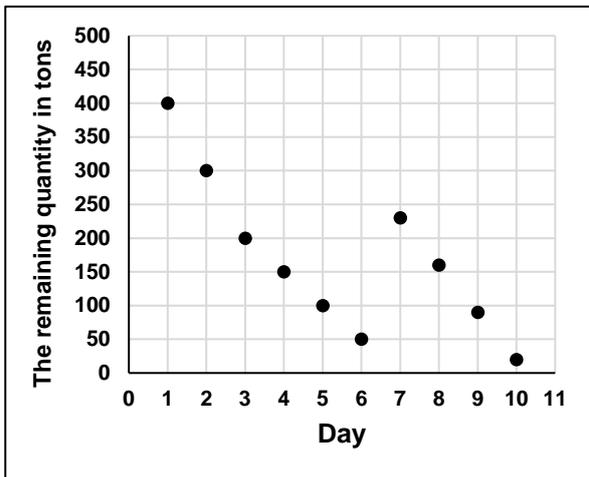


- Sample of Practice Items -

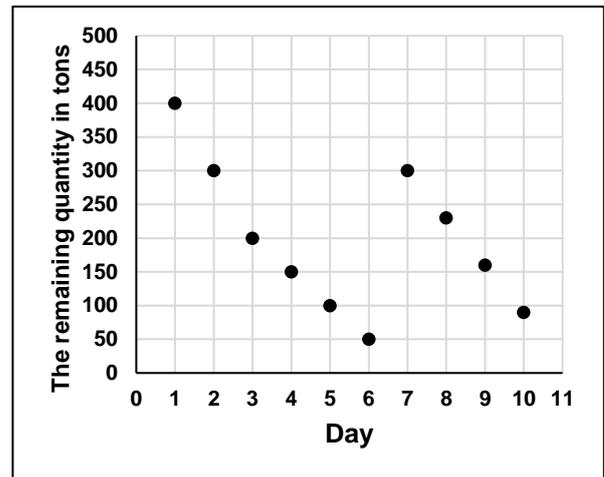
- 2** A construction company is overseeing the construction of a residential tower. The company provides 500 tons of cement on-site. When the remaining amount of cement reaches 50 tons or less, a truck carrying 250 tons is sent to the site at the beginning of the next day. During ten days of work, the cement usage in the first three days was at a rate of 100 tons per day, in the second three days at a rate of 50 tons per day, and in the remaining four days at a rate of 70 tons per day.

Which of the following graphs represents the amount of cement remaining at the end of each day of the ten days?

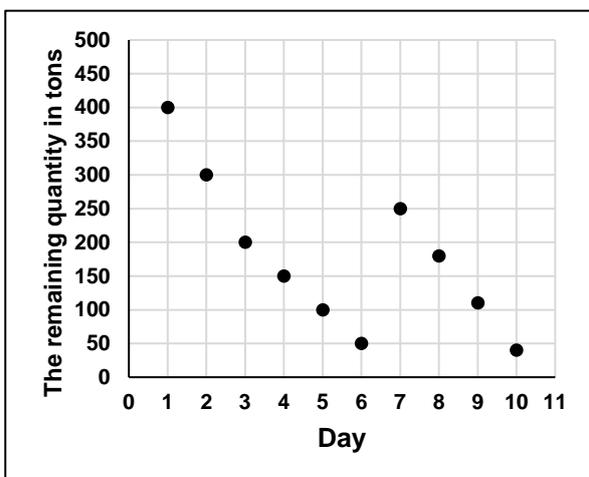
A



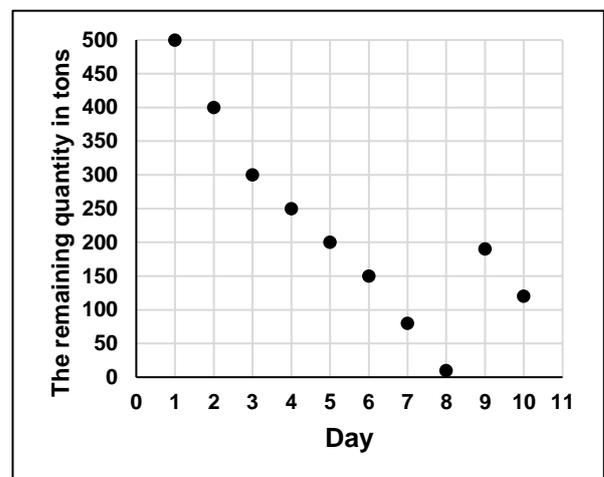
B



C

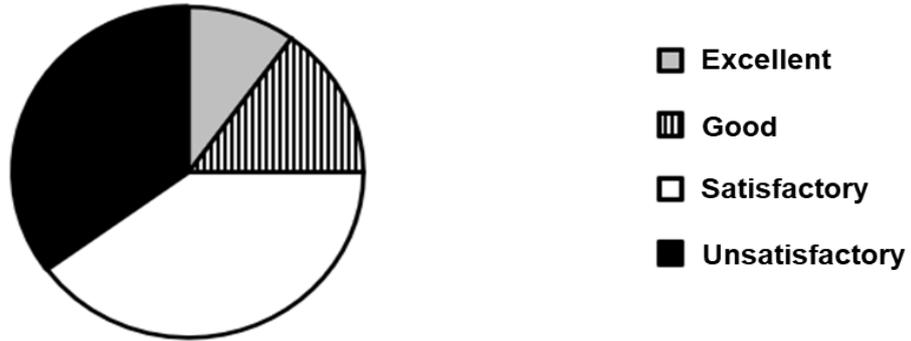


D



- Sample of Practice Items -

- 3** At the end of each year, the Ministry of Health conducts a survey to assess the level of patient satisfaction with the healthcare services provided during that year. The survey results for 2024 are illustrated in the chart below.

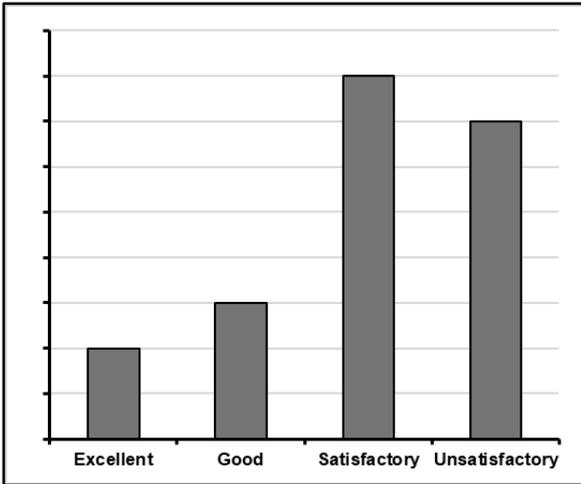


By the end of 2025, all satisfaction rates for the provided healthcare services (excellent, good, satisfactory) had increased, and both the excellent satisfaction rate and the good satisfaction rate had doubled compared to the previous year.

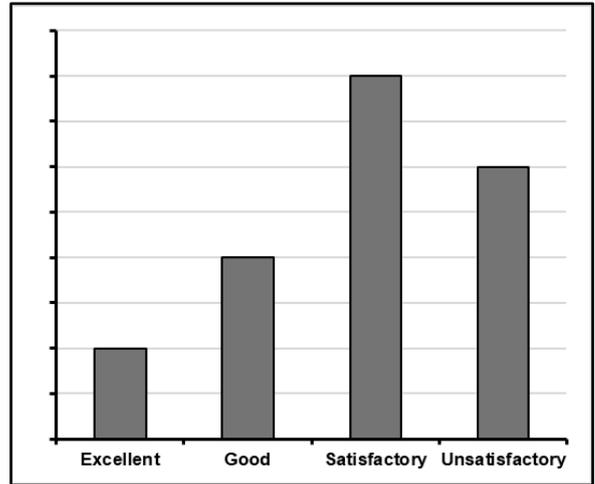
- Sample of Practice Items -

Which of the following graphs can represent the percentages of patient satisfaction with the healthcare services provided in 2025?

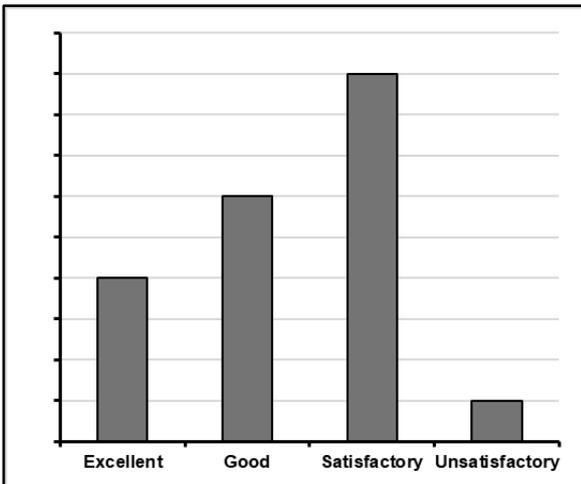
A



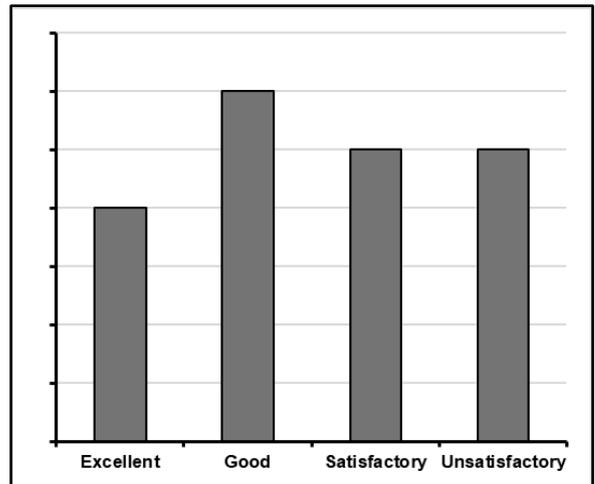
B



C



D



- Sample of Practice Items -

- 4** The principal of a high school decided to form a committee to prepare and get ready for this year's national examinations.

The principal has set the following conditions for this committee:

- The committee shall be formed of a senior teacher as the chairman and three teachers as members of the committee.
- At least one teacher from each of the three departments concerned with the national examinations (Mathematics – Arabic Language – English Language) shall be selected as a member of the committee representing their department.

The table below shows the names of the teachers from the three departments.

Position	Mathematics Department	Arabic Department	English Department
Senior Teacher	Abdullah Kathem	Redha Mohamed	Atif Sayed
Teacher	Hani Mustafa	Salah Mahmoud	Suleiman Ramzi
Teacher	Khaled Hussein	Jafar Ahmed	Rabea Abdeljawad
Teacher	Salman Dawood	Sarhan Ali	Rajab Bastawi
Teacher	Mohamed Jafar	Mostafa Kamel	Yasser Abdelhafeth
Teacher	Ayman Amir	Mohanad Osama	Wael Mabrook

Which group of names below will not be approved by the principal?

- A** Abdullah Kathem, Salman Dawood, Sarhan Ali, Rabea Abdeljawad
- B** Atif Sayed, Ayman Amir, Mohanad Osama, Wael Mabrook
- C** Redha Mohamed, Hani Mustafa, Mohamed Jafar, Rajab Bastawi
- D** Abdullah Kathem, Khaled Hussein, Salah Mahmoud, Yasser Abdelhafeth

- Sample of Practice Items -

- 5** The table below shows the sales of a company for the first five months of last year.

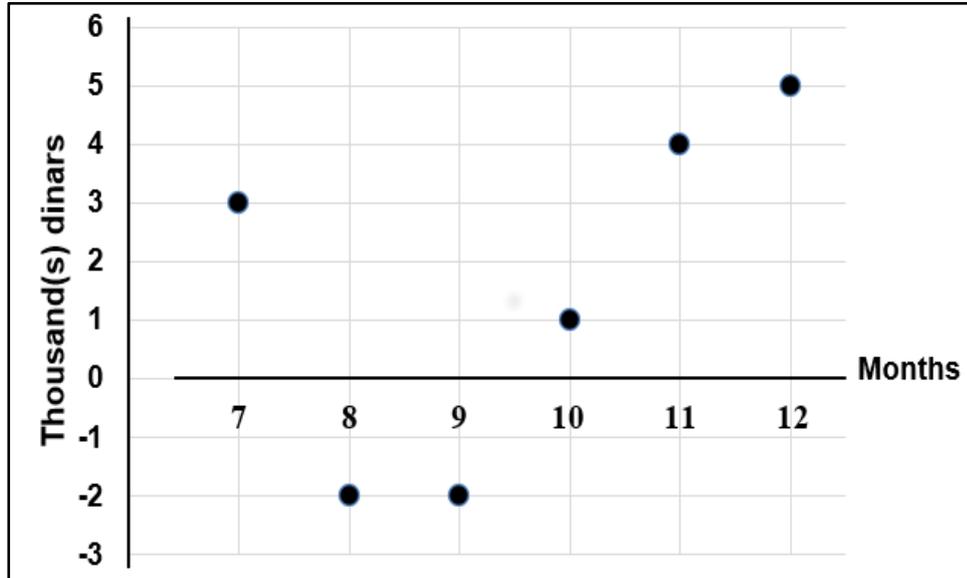
Month	Sales (BD)
January	5000
February	6000
March	4500
April	5500
May	6050

What is the relative increase in sales from January to February?

- A** 16.7 %
- B** 20.0 %
- C** 21.0 %
- D** 120.0 %

- Sample of Practice Items -

- 6 The graph below shows the profit and loss of a company from selling a certain product during the second half of last year.



The manager of the company asked one of the employees to represent the data above so that the graph presents the cumulative total profits for each month starting from July.

- Sample of Practice Items -

Which of the following graphs did the employee implement as requested by the company manager?

A

Month	Cumulative Profits
7	3
8	-2
9	-2
10	1
11	4
12	5

B

Month	Cumulative Profits
7	3
8	1
9	0
10	0
11	4
12	9

C

Month	Cumulative Profits
7	3
8	3
9	3
10	4
11	8
12	13

D

Month	Cumulative Profits
7	3
8	1
9	-1
10	0
11	4
12	9

- Sample of Practice Items -

- 7 Susan bought a new phone from an online store after doing some research. She got the options listed in the table below, which shows the phone type, memory capacity, price, and discount percentage.

Phone Type	Memory Capacity (GB)	Price (BD)	Discount Rate
First	512 GB	600	32%
Second	256 GB	360	40%
Third	256 GB	380	48%
Fourth	128 GB	300	44%

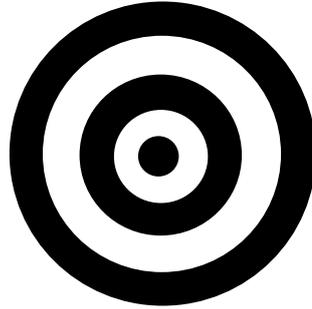
Susan noticed that the percentage of the device's price she bought after the discount to its memory capacity is the lowest among the devices she found.

What type of device did Susan buy?

- A** First
- B** Second
- C** Third
- D** Fourth

- Sample of Practice Items -

- 8 Walid prefers the dartboard game and plays it with his brother Osama. This time, Walid set new rules for the game as follows:



- Frame Points: large white frame 12 points, small white frame 4 points, large black frame 10 points, small black frame 25 points.
- If the arrow lands on the black frame, the frame's points are added to the player's score.
- If the arrow lands on the white frame, the frame's points are deducted from the player's score.
- If the arrow lands on the centre (the black point), the player's score is doubled.
- Each player has three throws per round.

The first round ended with Walid scoring 9 points and Osama scoring 10 points. In the second round, Walid's first arrow landed on the large white frame, his second arrow on the small white frame, and his third arrow on the small black frame. Meanwhile, Osama's first arrow landed on the center, his second arrow on the small black frame, and his third arrow on the large white frame.

What is the difference between Osama's and Walid's points after the second round?

- A 0
- B 15
- C 18
- D 33

- Sample of Practice Items -

- 9** A high school organised a Rubik's Cube competition for its students, where participants had to solve two types of Rubik's Cubes: the first $3 \times 3 \times 3$ and the second $4 \times 4 \times 4$. It set a scoring system for the competition as follows:
- Each participant has three rounds to solve each type of Rubik's Cube.
 - Participants gain points equal to the number of seconds remaining out of 60 seconds if they solve the first type of cube in less than 60 seconds for each round.
 - Participants lose points equal to the number of seconds exceeding 60 seconds for each round if they solve the first type of cube.
 - Participants gain points equal to the number of seconds remaining out of 120 seconds if they solve the second type of cube in less than 120 seconds for each round.
 - Participants lose double the number of seconds exceeding 120 seconds for each round if they solve the second type of cube.

Hassan participated in the competition and took the following times to solve the first type of Rubik's Cube: 50 seconds in the first round, 63 seconds in the second round, and 47 seconds in the third round. He took the following times to solve the second type of Rubik's Cube: 100 seconds in the first round, 110 seconds in the second round, and 130 seconds in the third round.

What is the final score that Hassan achieved in solving the two types of Rubik's Cubes?

- A** 30
- B** 37
- C** 40
- D** 53

- Sample of Practice Items -

- 10** Hani owns a factory that produces plastic goods using two machines, each operating in a separate production line. The table below shows the details of each machine's operation:

	Machine A	Machine B
Start Time	7:00	7:30
End Time	19:00	19:30
Work Cycle Duration (min)	60	90
Rest Duration After Each Work Cycle (min)	30	60
Production Amount Per Cycle	150	300

One day, the power went out across the entire factory at exactly 11:30 AM for an hour and a half, and then work started with the two machines simultaneously.

What was the highest production reached by the factory that day?

- A** 2250 goods
- B** 2550 goods
- C** 2700 goods
- D** 2850 goods

- Sample of Practice Items -

- 11** An airline company offers deals to travel and tourism agencies when they book travel tickets to the same destination for their clients. The table below shows the travel destinations and the price of each ticket according to its class in the booking order.

Destinations	Ticket price according to its order	
	1-5	Higher than 5
Azerbaijan	185	175
Turkey	162	158
Thailand	203	194

So if the agency buys 8 tickets to the same destination, the price of the first 5 tickets will be higher than the price of each of the remaining 3 tickets.

During the promotion period, "Al Noor" agency bought 6 tickets to Turkey and 7 tickets to Thailand.

What is the total amount that Al Noor agency paid to the airline for buying the 13 tickets?

- A BD 2306
- B BD 2335
- C BD 2371
- D BD 2393

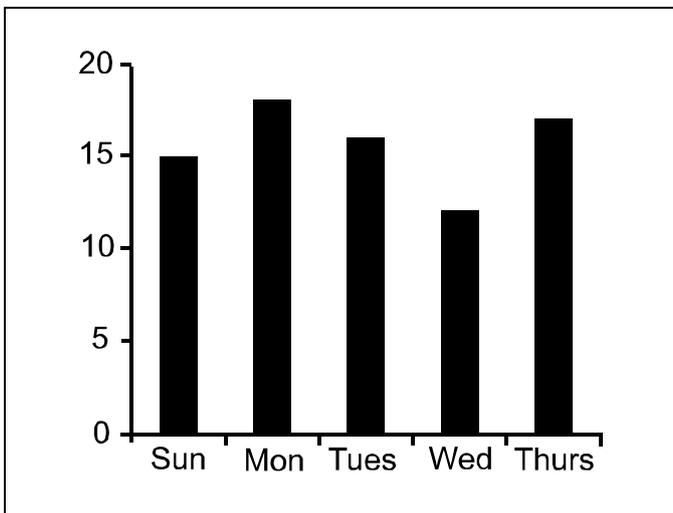
- Sample of Practice Items -

12 Ali works part-time delivering meals to customers of a fast-food restaurant. During regular working hours, he earns 500 fils for each delivery. During night shifts, he earns double the amount for each delivery. The number of meals Ali delivered last week is shown in the table below.

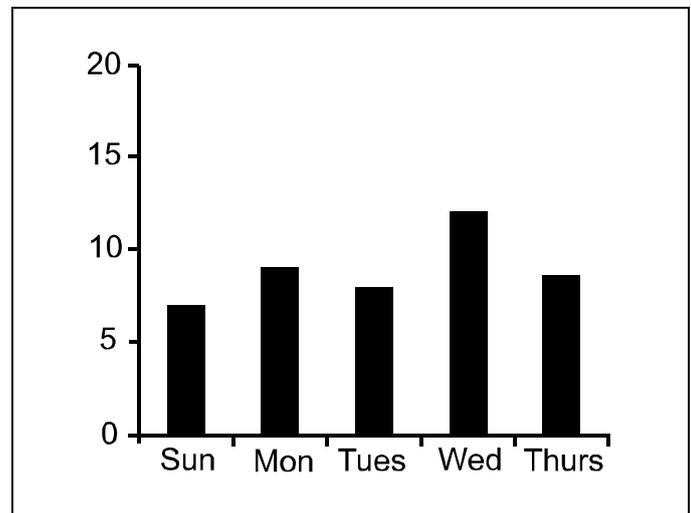
Days	Sunday	Monday	Tuesday	Wednesday	Thursday
Number of Meals	15	18	16	12	17

Which of the following graphs can represent the amount Ali collected each day of the past week if he worked the night shift only once?

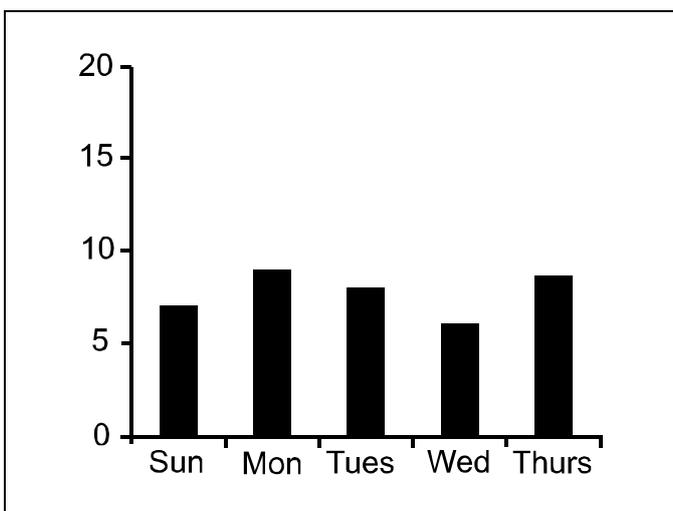
A



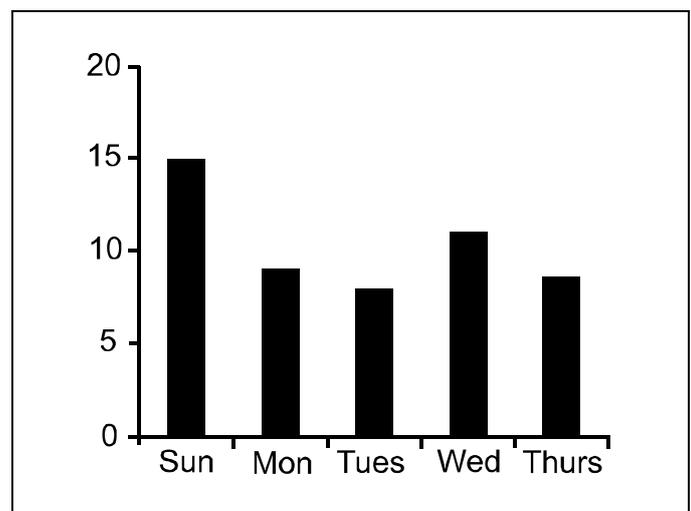
B



C



B



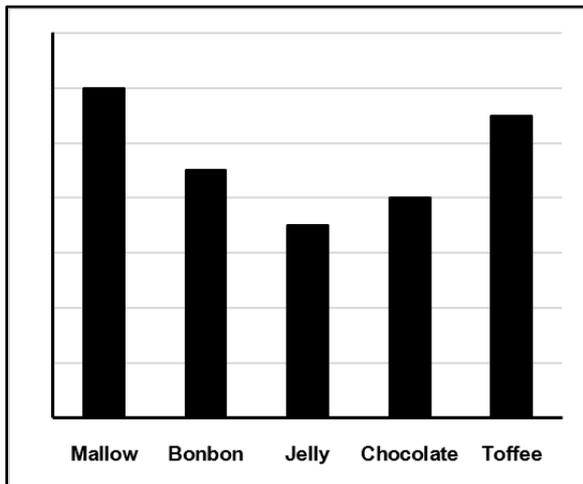
- Sample of Practice Items -

- 13** Huda buys a bag of candy weighing between 475 and 500 grams. The bag contains five types of candy: marshmallows, bonbons, jelly, chocolate, and toffee. The table below shows the weight of each type of candies out of the total weight of the bag, except for the toffee.

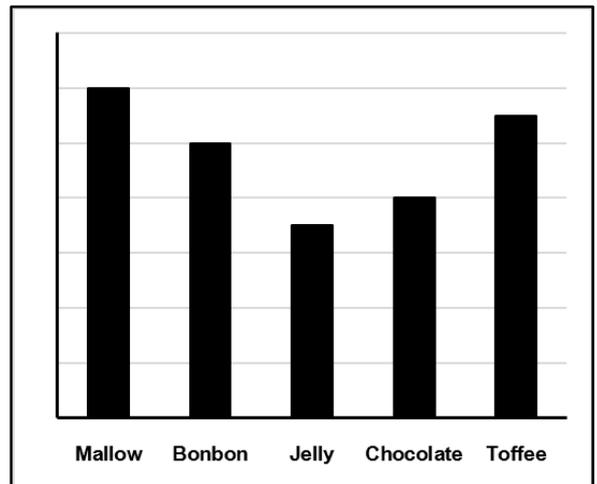
Candy	Marshmallow	Bonbon	Jelly	Chocolate
Weight (grams)	120	100	70	80

Which of the following graphs can represent the weight distribution of the five types of candies in the candy bag?

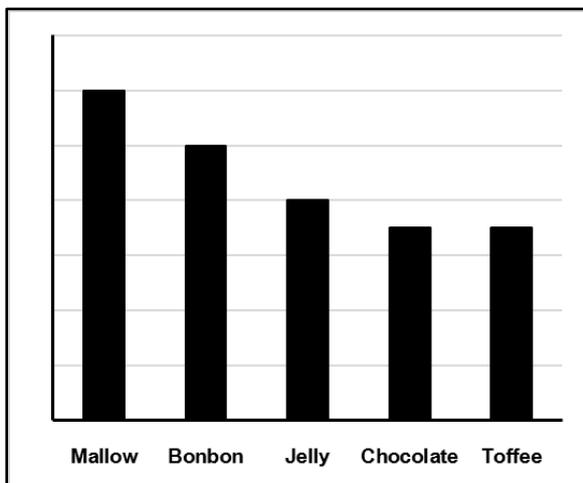
A



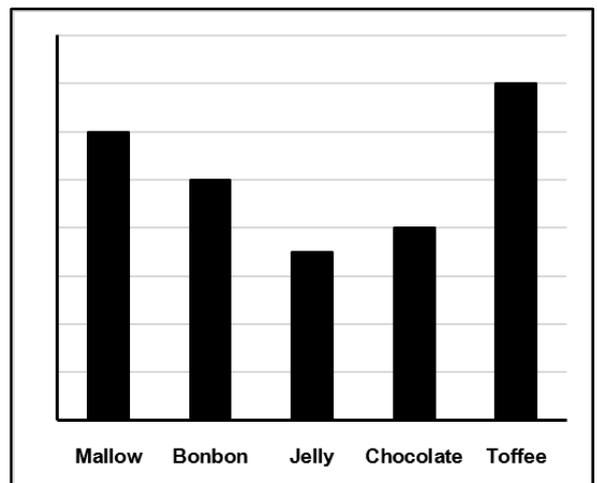
B



C



D



- Sample of Practice Items -

- 14** Four teams participated in football matches. The table below shows the number of wins, draws, or losses in the 12 matches these teams played at home and away.

Team	Home Matches			Away Matches		
	Win	Draw	Loss	Win	Draw	Loss
Blue	1	1	1	1	2	0
Yellow	2	1	0	0	0	3
Green	1	2	0	2	1	0
Red	1	0	2	0	1	2

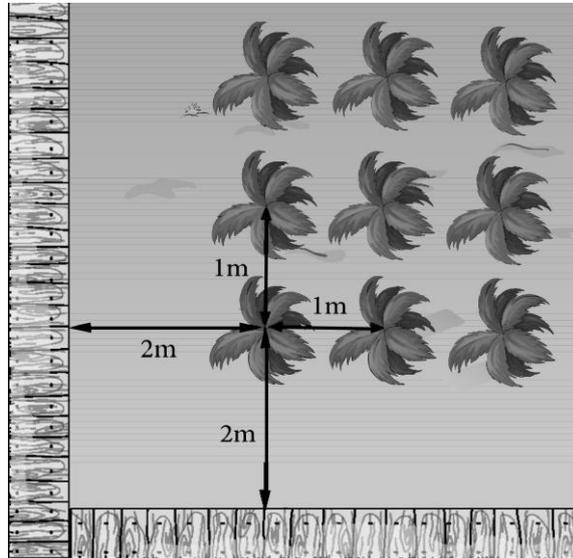
The coach of the blue team conducted some statistics to study his team's performance.

What is the percentage of **non-loss** in all matches played by the Blue Team compared to the total matches played by all teams?

- A 8.33%
- B 16.67%
- C 25.00%
- D 41.67%

- Sample of Practice Items -

- 15** One of the gardens contains 15 rows, each consisting of 12 trees. Each row is 1 meter apart from the next, and the distance between each two trees in each row is also 1 m. Additionally, a distance of 2 m was left on each side of the garden. The diagram below shows one corner of the garden.



What are the dimensions of the garden?

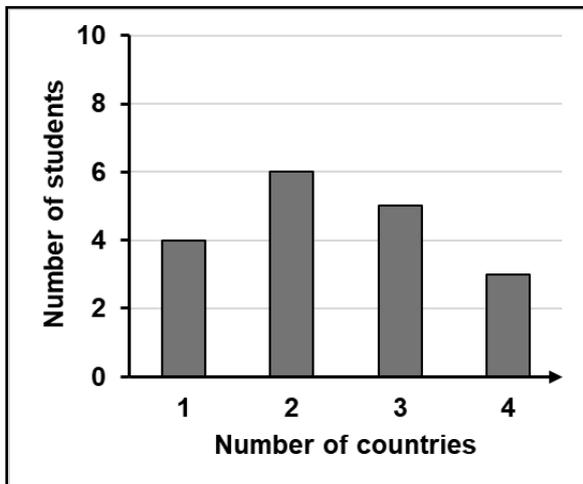
- A** 13 m x 16 m
- B** 14 m x 17 m
- C** 15 m x 18 m
- D** 16 m x 19 m

- Sample of Practice Items -

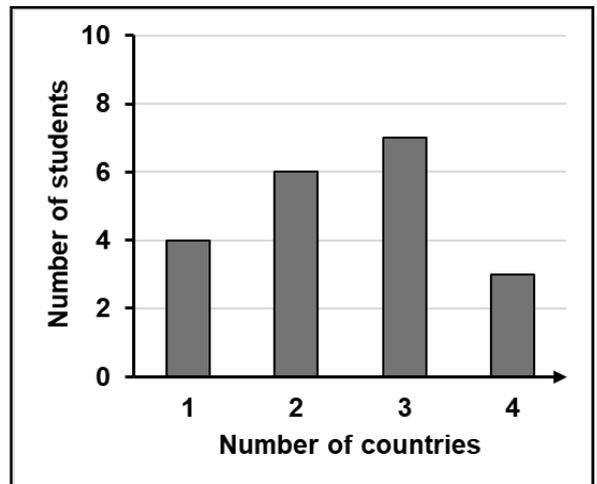
- 16** The math teacher asked 20 students about the number of different countries they had visited. When he received their answers, he found that all of them had visited at least one country, and 30% of them had visited exactly two countries, but none had visited more than four countries.

Which of the following graphs represents the students' data?

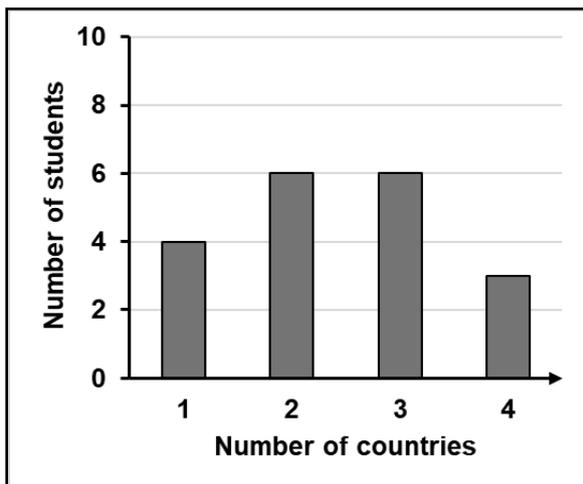
A



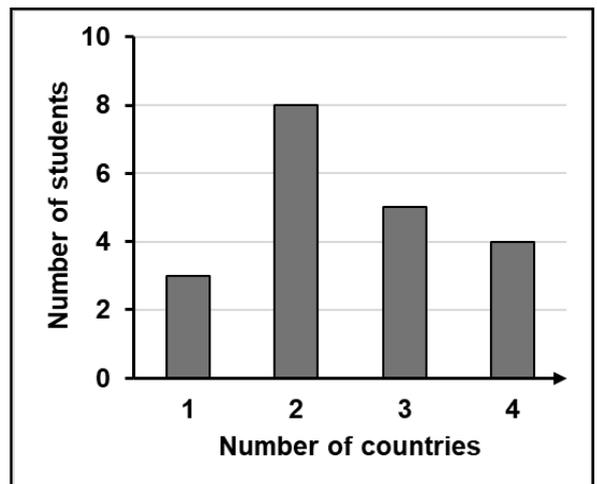
B



C



D



- Sample of Practice Items -

- 17** One of the cattle farms raises five cows of different dairy breeds. The table below shows the amount of feed given to each cow daily of the same type, and the amount of milk each cow produces daily.

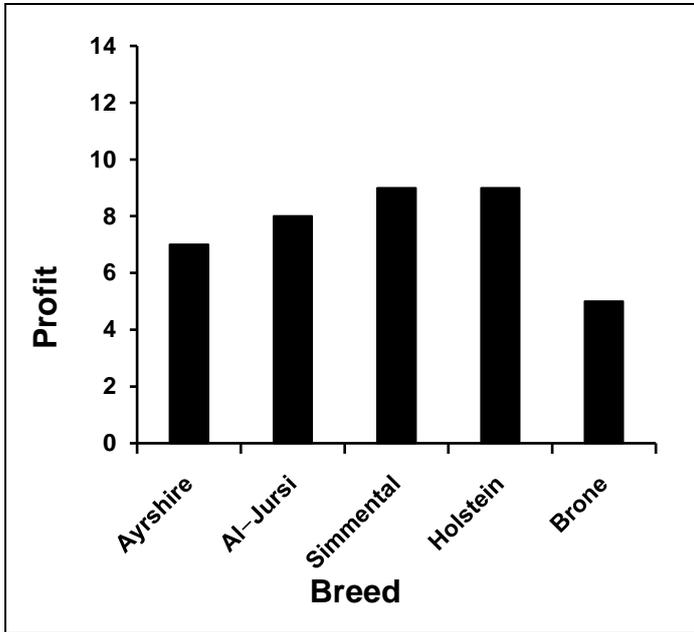
Breed	Brone	Holstein	Simmental	Al-Jursi	Ayrshire
Daily feed amount (kg)	15	13	10	11	13
Daily milk production (kg)	23	27	24	22	23

Despite the fact that the price of 1 kg of feed is higher than the price of 1 kg of milk, the five cows milk production still generates a profit.

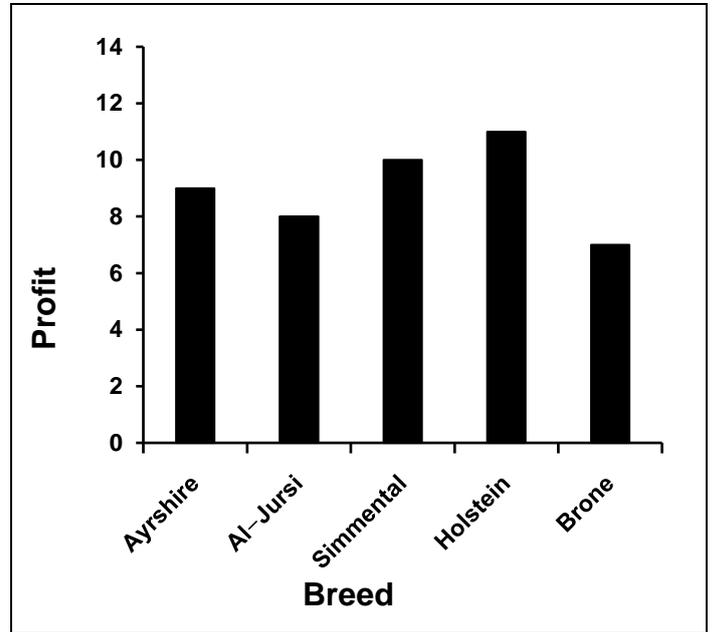
- Sample of Practice Items -

Which of the following charts can represent the daily profit made by each type of cows?

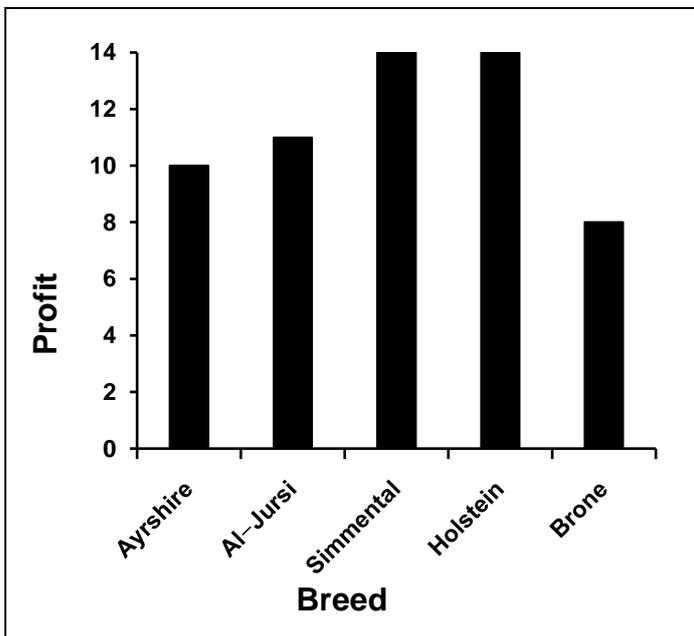
A



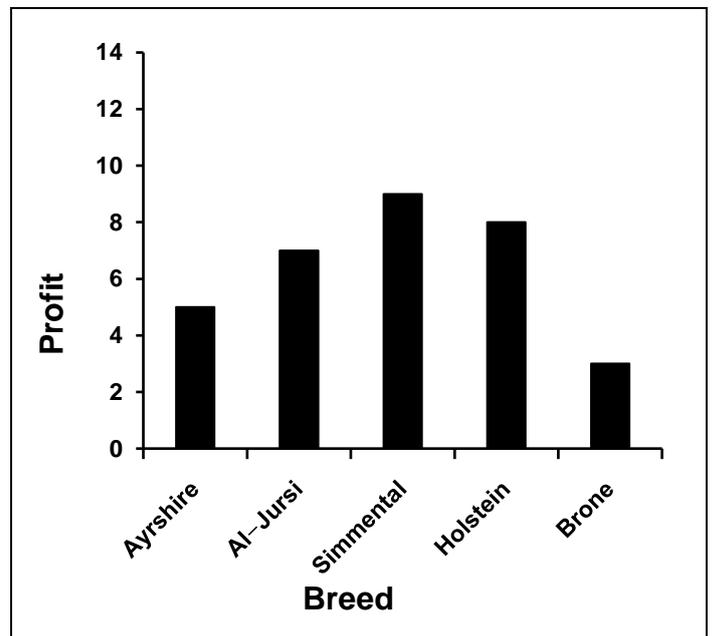
B



C



D



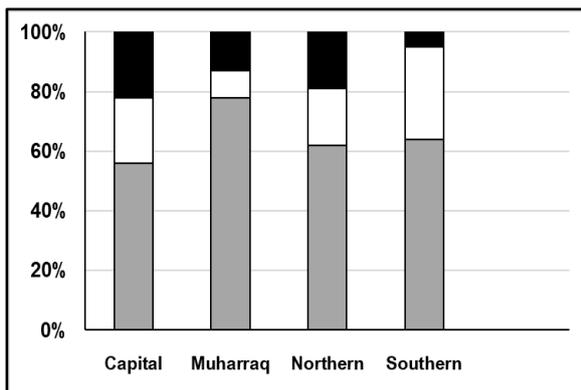
- Sample of Practice Items -

18 The following table represents the number of public schools by the educational level and the governorates for the academic year 2012/2013 in the Kingdom of Bahrain:

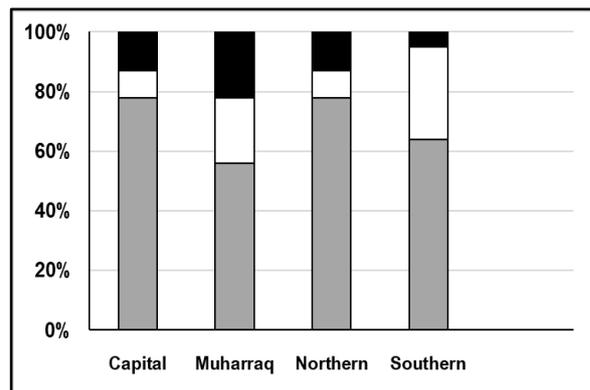
Education Level	Governorates			
	Capital	Muharraq	Northern	Southern
Primary	18	20	35	27
Intermediate	7	6	4	13
Secondary	7	6	6	2

Which of the following charts shows the percentage by the educational level in the four governorates?

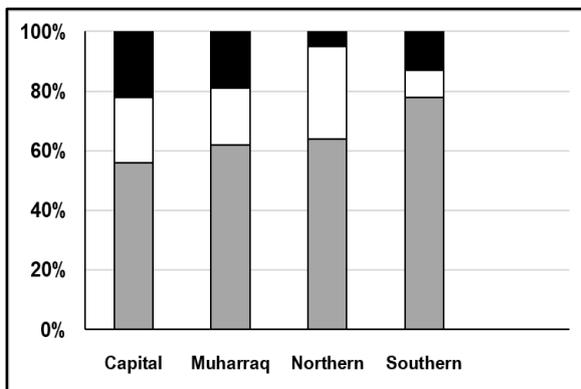
A



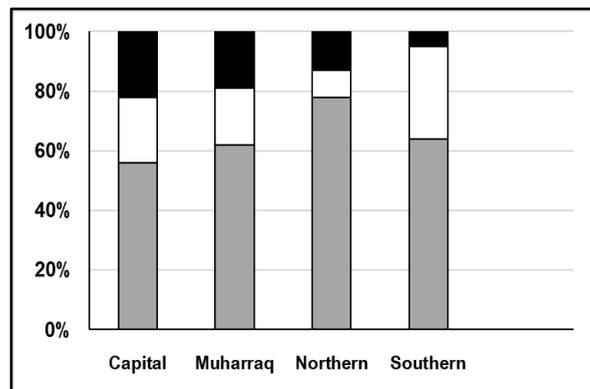
B



C



D



Primary
 Intermediate
 Secondary

- Sample of Practice Items -

19 The table below shows the grades of four students in three subjects:

The student	Mathematics	Science	Arabic
Ahmed	85	90	89
Sarah	78	85	92
Laila	92	89	95
Ali	80	72	85

What is Layla's average grade in the three subjects?

- A** 79
- B** 85
- C** 88
- D** 92

- Mark Scheme -

Question Number	Answer
1	B
2	A
3	C
4	C
5	B
6	D
7	C
8	B
9	A
10	B
11	C
12	B
13	B
14	D
15	C
16	B
17	D
18	D
19	D