# Level A - Form 1 - Applied Mathematics: Data Analysis

### Popcorn Prices

Small..................$1.50
Medium..............$2.25
Large..................$3.50
Jumbo................$4.25

What is the cost of one large popcorn?

    A $1.50

    B $2.25

    C $3.50

    D $4.25
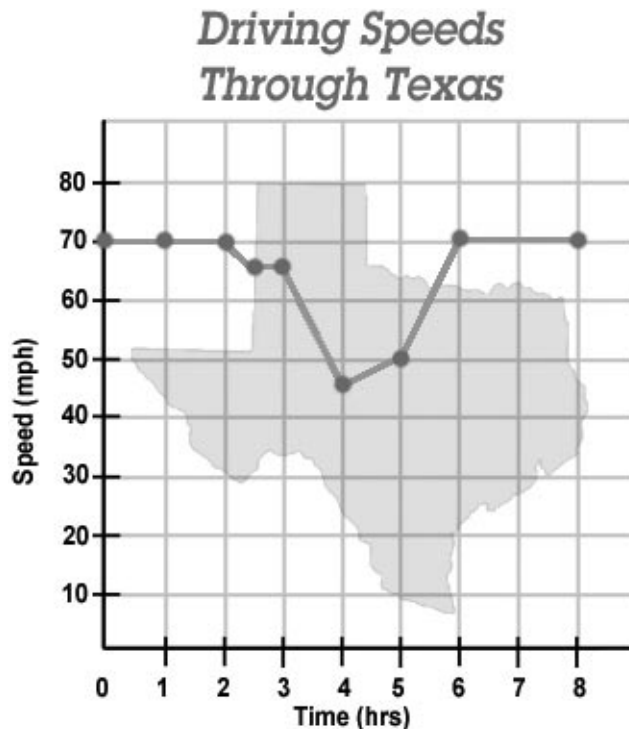
# Level A - Form 1 - Applied Mathematics: Data Analysis

Cameron and Murray drove for 8 hours across the state of Texas. The graph shows their driving speeds for those 8 hours. Study the graph. Then do Numbers 1 through 2.

**Driving Speeds Through Texas**



1. What was the speed Cameron and Murray were driving 4 hours into the trip through Texas?

   A  50 mph
   B  65 mph
   C  45 mph
   D  55 mph

2. Which of the following descriptions applies to Cameron and Murray's trip through Texas?

   F  They drove for 2 hours, stopped for lunch for one hour, and then continued on their way.

   G  They drove for 3 hours, went up a hill, stopped for picture-taking, then went down the hill.

   H  They drove for 2 hours, then traveled through a one-lane construction zone and several small towns before getting back on the highway.

   J  They hit traffic as soon as they entered Texas, then sped up to make up for lost time.

3. The table below shows 5 different categories of hurricanes based on wind speed. A hurricane hit the Florida coast. Wind speeds were around 120 miles per hour. What category hurricane was this?
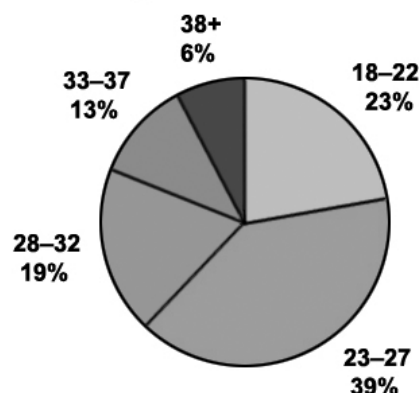
**Hurricane Wind Speeds**

| Catagory Number | Wind Speed |
|---|---|
| 1 | 74 to 95 mph |
| 2 | 96 to 110 mph |
| 3 | 111 to 130 mph |
| 4 | 131 to 155 mph |
| 5 | greater than 155 mph |

A 1

B 2

C 3

D 4

**The graph shows the ages of Professor Gray's sociology students. Study the graph. Then do Numbers 4 through 5.**
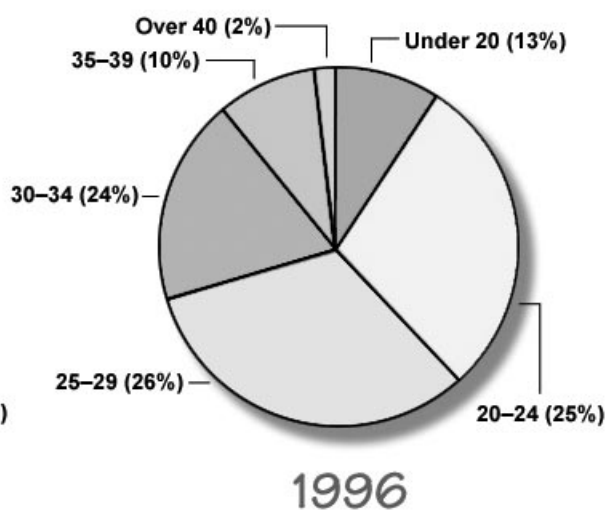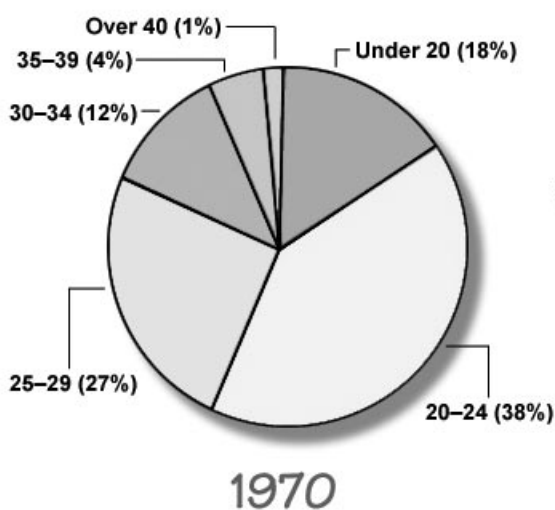
**Ages of Students**

4. The number of students aged 28 to 32 is the same as the number of students in which two age groups?

F 23–27 and over 38

G 18–22 and 33-37

H 18–22 and over 38

J 33–37 and over 38

5. Mr. Gray has 200 students. How many of his students are over 38 years old?

A 6

B 12

C 60

D 36

**A study was done to compare the age of new mothers in the U.S. between the years 1970 and 1996. Study both graphs. Then do Numbers 6 through 7.**

## Age of New Mothers in the United States

**1970**

Over 40 (1%)
35–39 (4%)
30–34 (12%)
Under 20 (18%)
25–29 (27%)
20–24 (38%)

**1996**

Over 40 (2%)
35–39 (10%)
30–34 (24%)
Under 20 (13%)
25–29 (26%)
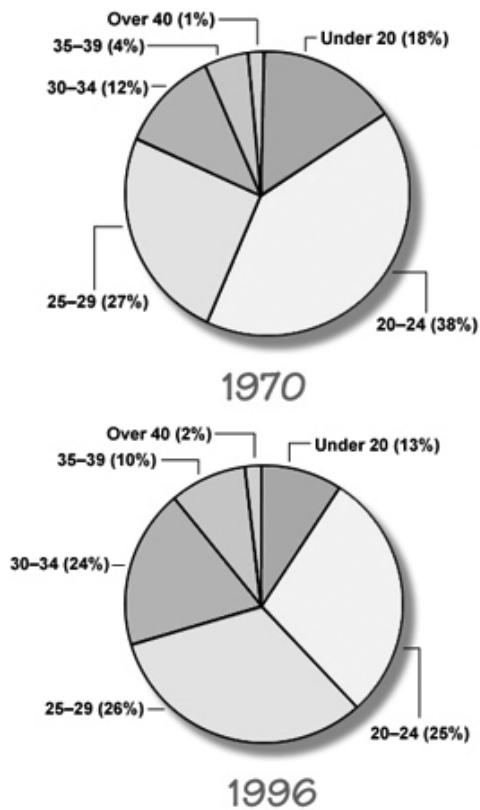20–24 (25%)

6. In which age group did the number of new mothers decrease the most between 1970 and 1996?

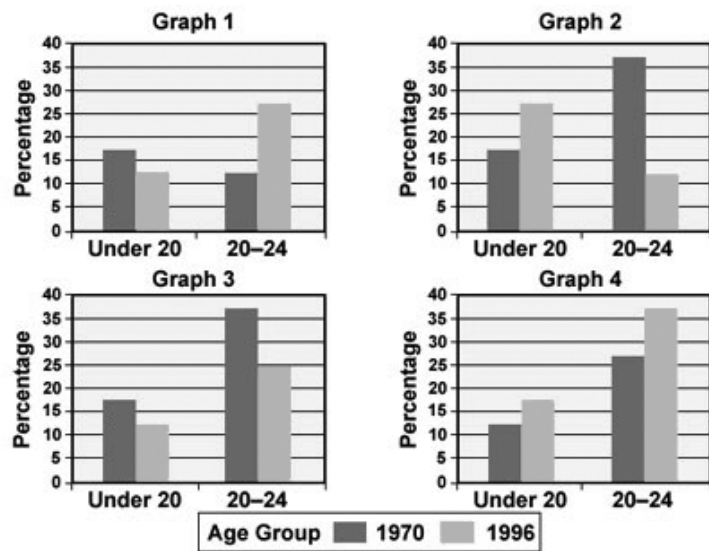   F under 20

   G 20–24

   H 30–34

   J 35–39

7. These graphs suggest what overall change between 1970 and 1996?

   A The percentage of new mothers under 30 decreased.

   B The number of teenage mothers increased.

   C The number of children born increased.

   D The number of single moms decreased.

**Holly is creating bar graphs to compare the information given on the circle graphs. Study the bar graphs carefully and compare with the information on the circle graphs. Then do Number 8.**



Over 40 (1%)
35–39 (4%)
30–34 (12%)
Under 20 (18%)
25–29 (27%)
20–24 (38%)

1970

Over 40 (2%)
35–39 (10%)
Under 20 (13%)
30–34 (24%)
25–29 (26%)
20–24 (25%)

1996

## Age of New Mothers in the United States

Graph 1
Graph 2
Graph 3
Graph 4

Percentage

Under 20    20–24

Age Group ■ 1970 ▨ 1996

8. Which one of the four bar graphs best represents new mothers under 20 and from 20 to 24 in 1970 and 1996?

    F Graph 1

    G Graph 2

    H Graph 3

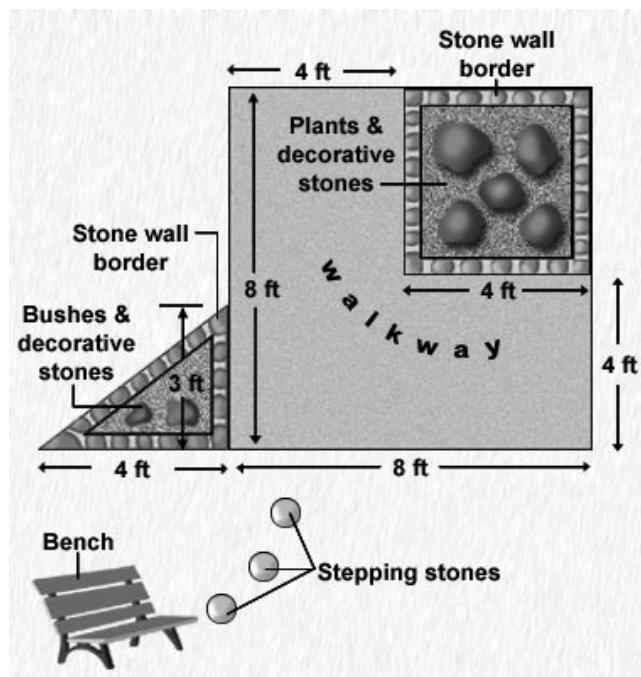    J Graph 4

The table shows prices of materials needed for a landscaping project. Study the table. Then do Numbers 9 through 10.

| Item | Weight (lb) | Cost per item |
|------|-------------|---------------|
| Brick pavers | 6.2 | $0.95 |
| Concrete pavers | 7.8 | $1.29 |
| Stepping stones | 40 | $4.35 |
| Sand | 50 | $3.10 per bag |
| Wall stones | 29 | $2.50 |
| Decorative stones | 50 | $3.49 per bag |

9. A landscaper is using the brick pavers as a border around a walkway. He calculated that he would need 100 brick pavers. What is the price for 100 brick pavers?

   A  $95.00

   B  $129.00

   C  $250.00

   D  $620.00

10. This chart is best used for determining

   F  the amount of time needed for the project

   G  the number of paving stones needed

   H  the required tools for the project

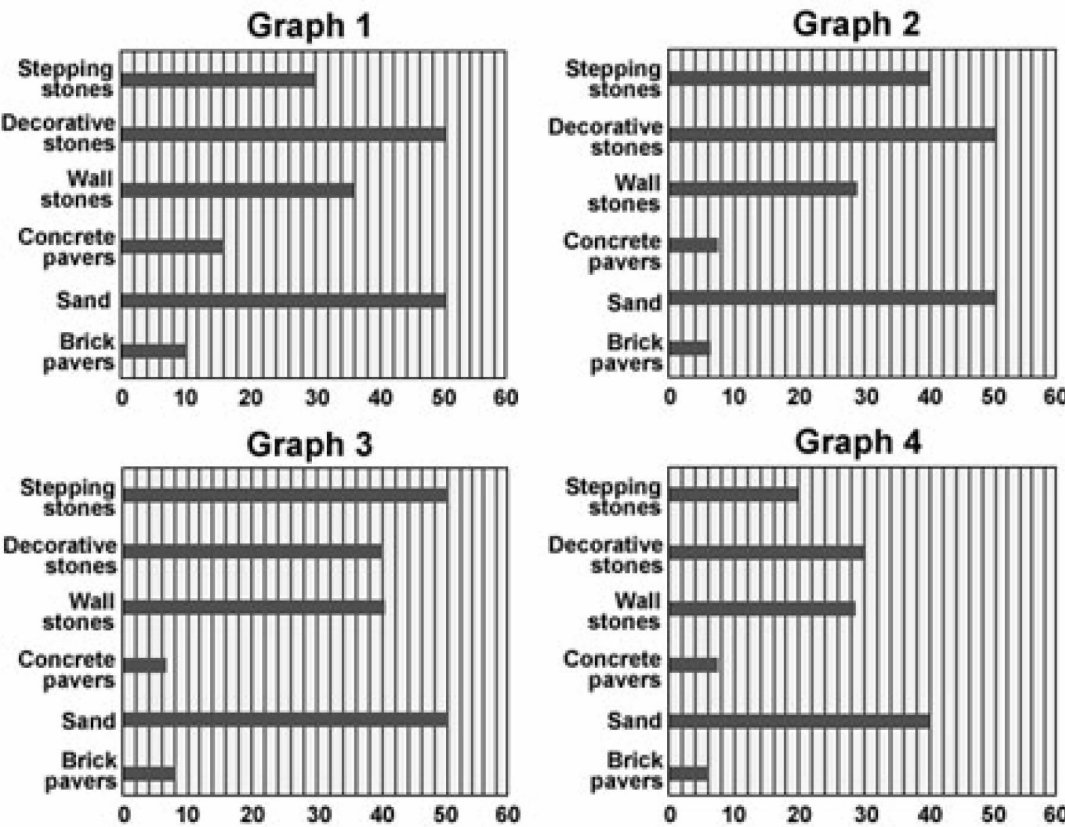   J  the cost of the project

The diagram shows the layout for a landscaping project. Study the diagram. Then do Number 11.



11. According to the diagram, how many stepping stones are needed?

   A  1

   B  2

   C  3

   D  4

Riley wants to compare the landscaping materials by weight. He has created a bar graph to show the comparison. Study the graphs. Then do Number 12.

| Item | Weight (lb) | Cost per item |
|---|---|---|
| Brick pavers | 6.2 | $0.95 |
| Concrete pavers | 7.8 | $1.29 |
| Stepping stones | 40 | $4.35 |
| Sand | 50 | $3.10 per bag |
| Wall stones | 29 | $2.50 |
| Decorative stones | 50 | $3.49 per bag |

### Graph 1



### Graph 2



### Graph 3



### Graph 4



12. Which graph correctly displays the landscaping items by weight?
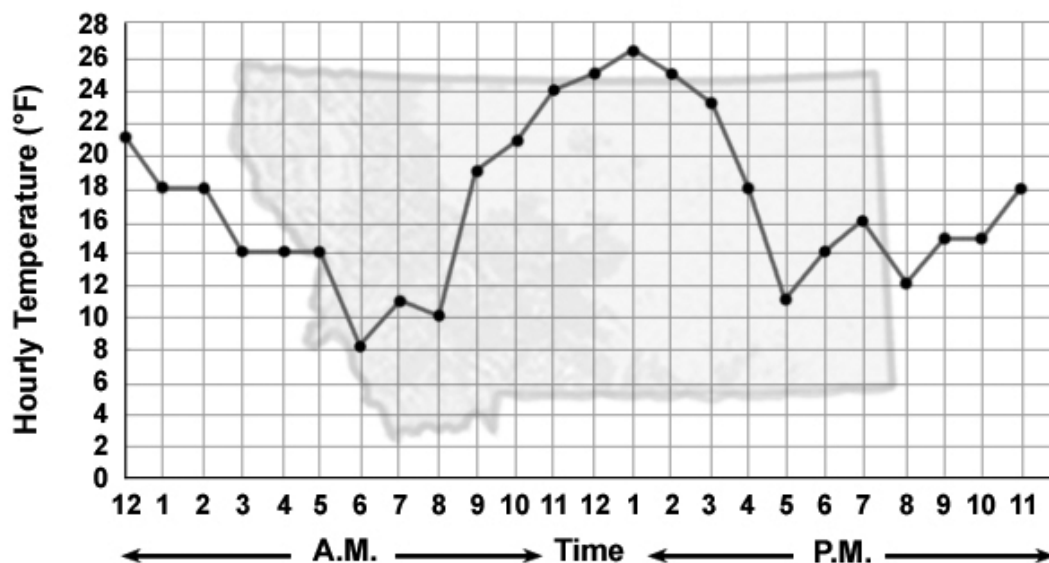
    F  Graph 1

    G  Graph 2

    H  Graph 3

    J  Graph 4

**A weatherman at Great Falls, Montana, created a line graph to show temperature changes during one winter day. Study the graph. Then do Numbers 13 through 14.**

## Hourly Temperatures In Great Falls, Montana, On November 21, 1998
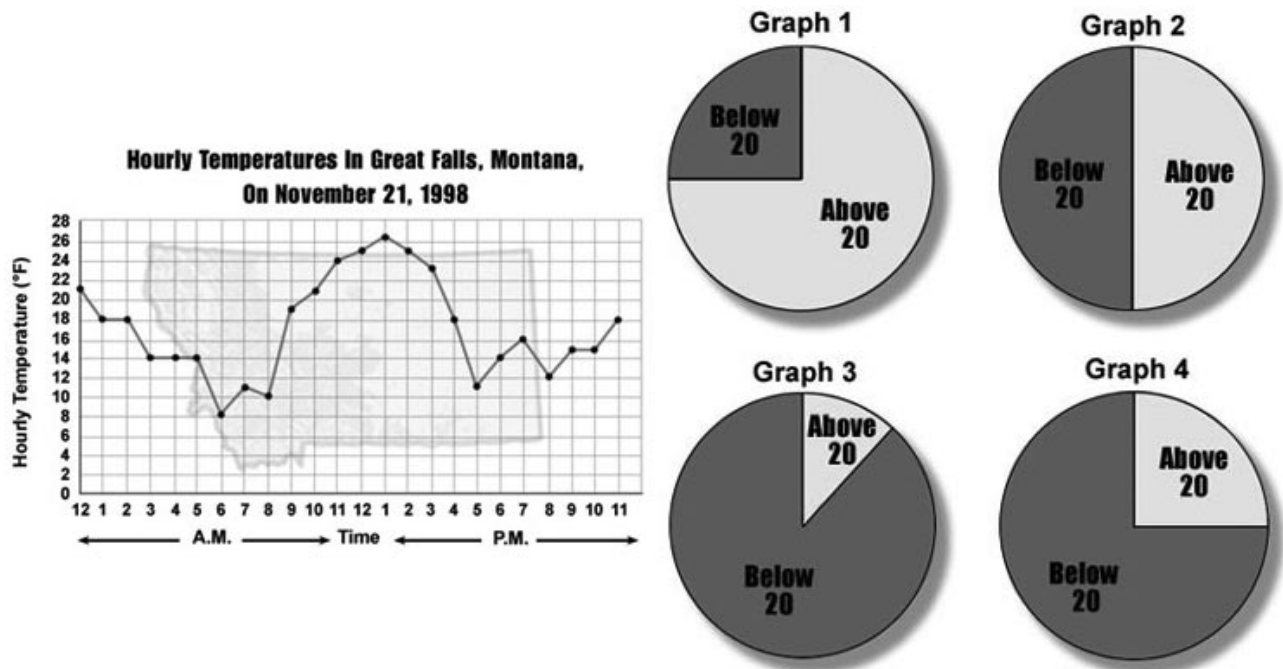


13. During which hour was the greatest temperature increase?

    A  8:00 A.M. to 9:00 A.M.

    B  4:00 P.M. to 5:00 P.M.

    C  noon to 1:00 P.M.

    D  6:00 A.M. to 7:00 A.M.

14. Which statement is true?

    F  The temperature steadily increased from 6:00 A.M. to noon.

    G  The lowest temperature occurred at 5:00 P.M.

    H  The temperature remained the same from 2:00 A.M. to 5:00 A.M.

    J  The temperature steadily decreased from 1:00 P.M. to 5:00 P.M.

The weatherman wanted to compare the number of hours above and below 20 degrees so he created a circle graph. Study the graphs. Then do Number 15.

**Graph 1**

Below 20 / Above 20

**Graph 2**

Below 20 | Above 20

**Hourly Temperatures In Great Falls, Montana, On November 21, 1998**



**Graph 3**

Above 20 / Below 20

**Graph 4**

Above 20 / Below 20

15. Which graph best depicts the number of hours above 20 degrees and below 20 degrees in Great Falls, Montana, on November 21, 1998?

    A Graph 1

    B Graph 2

    C Graph 3

    D Graph 4

The table shows the area and average depth of four oceans. Study the table. Then do Numbers 16 through 17.

| Ocean | Area (sq mi) | Average Depth (feet) |
|--------|-------------|---------------------|
| Atlantic | 31,815,000 | 12,880 |
| Indian | 28,350,000 | 13,002 |
| Pacific | 69,400,000 | 13,215 |
| Arctic | 5,440,200 | 3,953 |

16. Which ocean has the greatest average depth?

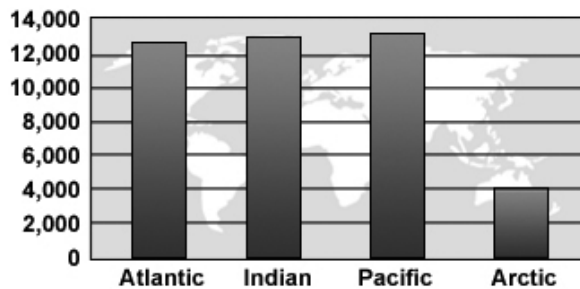    F Pacific

    G Atlantic

    H Indian

    J Arctic

17. Which conclusion can you draw from the data?

    A The greater the area of an ocean, the greater the average depth.

    B The area of the Pacific Ocean is slightly more than twice the area of the Atlantic Ocean.

    C The average depth of the Arctic Ocean is approximately one-half the average depth of the Pacific Ocean.

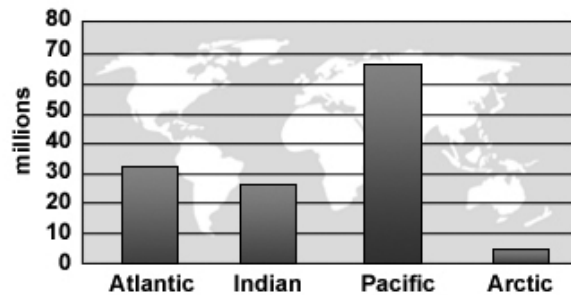    D The ocean with the greatest area has the highest average temperature.

Hailey created a bar graph to compare ocean sizes. Study the graphs. Then do Number 18.

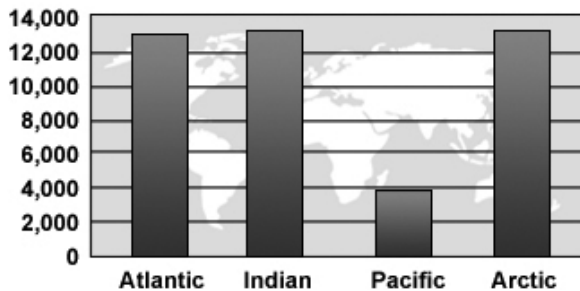| Ocean | Area (sq mi) | Average Depth (feet) |
|--------|-------------|---------------------|
| Atlantic | 31,815,000 | 12,880 |
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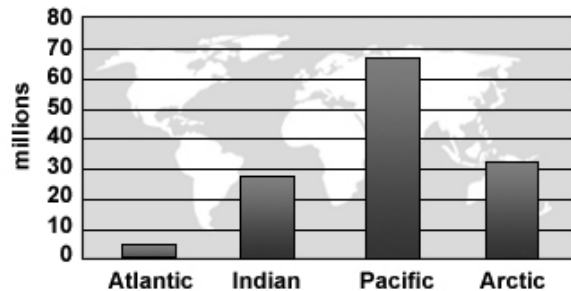### Graph 1



### Graph 2



### Graph 3



### Graph 4



18. Which graph correctly displays the area of each ocean?

    F  Graph 1

    G  Graph 2
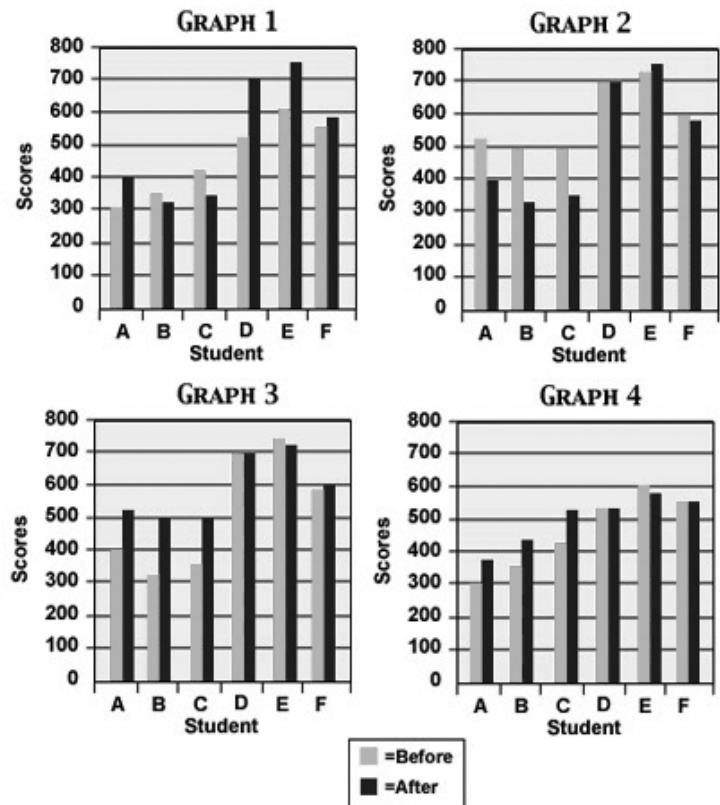
    H  Graph 3

    J  Graph 4

**The table shows test scores of six students before and after a test-prep course. Study the table. Then do Number 19.**

| STUDENT | BEFORE TEST PREP COURSE | | AFTER TEST PREP COURSE | |
|---|---|---|---|---|
| | READING | MATH | READING | MATH |
| A | 300 | 400 | 375 | 525 |
| B | 350 | 325 | 425 | 500 |
| C | 420 | 350 | 525 | 500 |
| D | 525 | 700 | 525 | 700 |
| E | 600 | 750 | 575 | 725 |
| F | 550 | 580 | 550 | 600 |

19. According to the table, which statement is true?

    A All students increased both their reading and math scores.

    B Student B's math score doubled after the test prep course.

    C Everyone scored higher on the final math than on final reading.

    D After the course, all students had a combined score greater than 850.

Dan wanted to compare the before and after scores for the six students shown in the table. He created a bar graph. Study the graphs. Then do Number 20.

**GRAPH 1**

**GRAPH 2**

| STUDENT | BEFORE TEST PREP COURSE | | AFTER TEST PREP COURSE | |
|---|---|---|---|---|
| | READING | MATH | READING | MATH |
| A | 300 | 400 | 375 | 525 |
| B | 350 | 325 | 425 | 500 |
| C | 420 | 350 | 525 | 500 |
| D | 525 | 700 | 525 | 700 |
| E | 600 | 750 | 575 | 725 |
| F | 550 | 580 | 550 | 600 |

**GRAPH 3**

**GRAPH 4**

= Before
= After

20. Which bar graph appropriately displays the math data from the table?

    F Graph 1

    G Graph 2

    H Graph 3

    J Graph 4