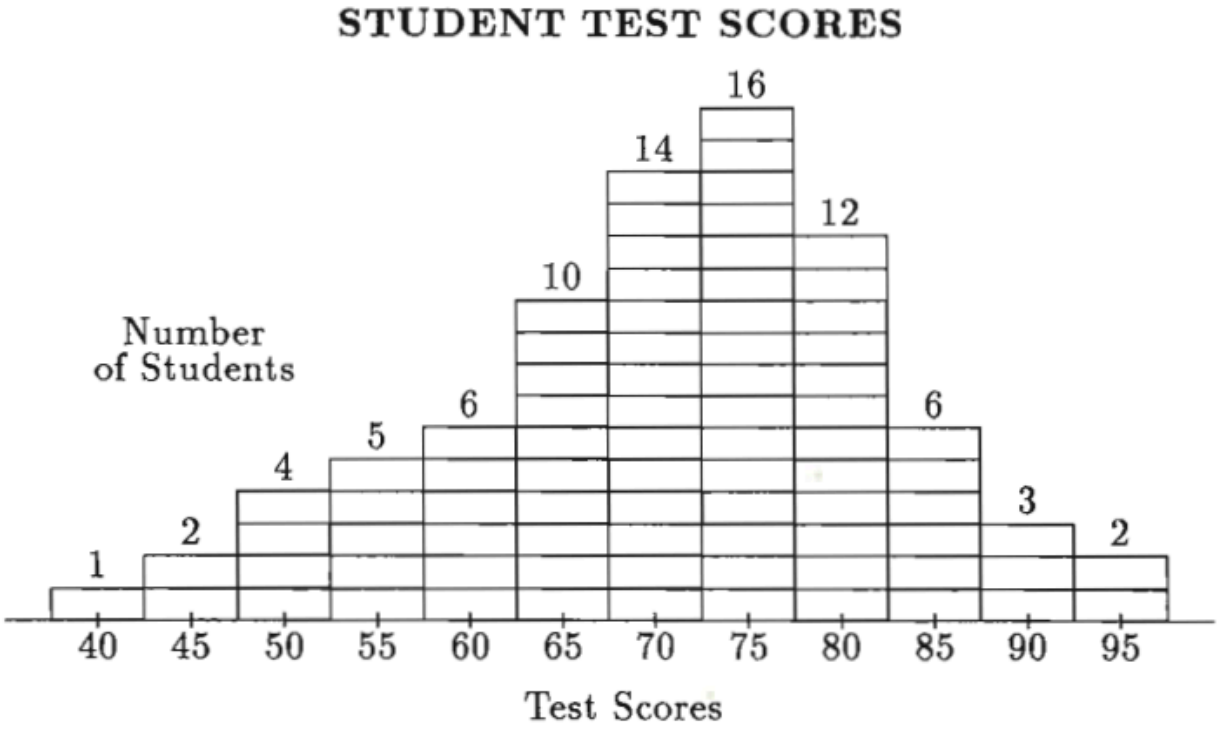
1993 Q11

11. Consider this histogram of the scores for 81 students taking a test:



The median is in the interval labeled

(A) 60 **(B)** 65 **(C)** 70 **(D)** 75 **(E)** 80

11. **(C)** Since 81 took the test, the median (middle) score is the 41st. The test interval containing the 41st score is labeled 70.

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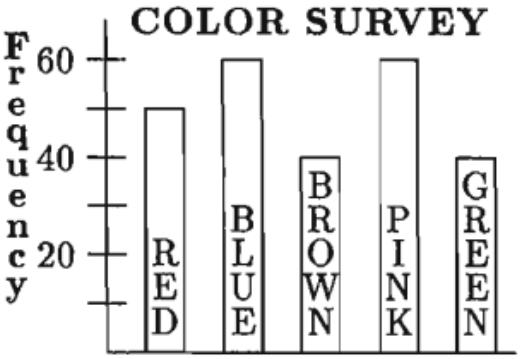
1992 Q11

11. The bar graph shows the results of a survey on color preferences. What percent preferred blue?

(A) 20% **(B)** 24% **(C)** 30%
(D) 36% **(E)** 42%



11. **(B)** The total frequency for all colors is $50 + 60 + 40 + 60 + 40 = 250$. The frequency for blue is 60. Thus the percent that preferred blue is 60/250, or 24%.

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1994 Q11

11. Last summer 100 students attended basketball camp. Of those attending, 52 were boys and 48 were girls. Also, 40 students were from Jones Middle School and 60 were from Clay Middle School. Twenty of the girls were from Jones Middle School. How many of the boys were from Clay Middle School?

(A) 20 (B) 32 (C) 40 (D) 48 (E) 52

11. **(B)** Since the total number of girls was 48 and there were 20 girls from Jones, it follows that there were $48 - 20 = 28$ girls from Clay. The total number of students from Clay was 60. Thus, there were $60 - 28 = 32$ boys from Clay.

OR

Complete a table starting with the given information:

	B	G	Tot
JMS :		20	40
CMS :			60
Total :	52	48	100

	B	G	Tot
JMS :	|20|	20	40
CMS :			60
Total :	52	48	100

	B	G	Tot
JMS :	20	20	40
CMS :	|32|		60
Total :	52	48	100

There were 32 boys from Clay Middle School.

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1997 Q11

11. Let [N] mean the number of whole number divisors of N. For example, [3] = 2, because 3 has two divisors, 1 and 3. Find the value of

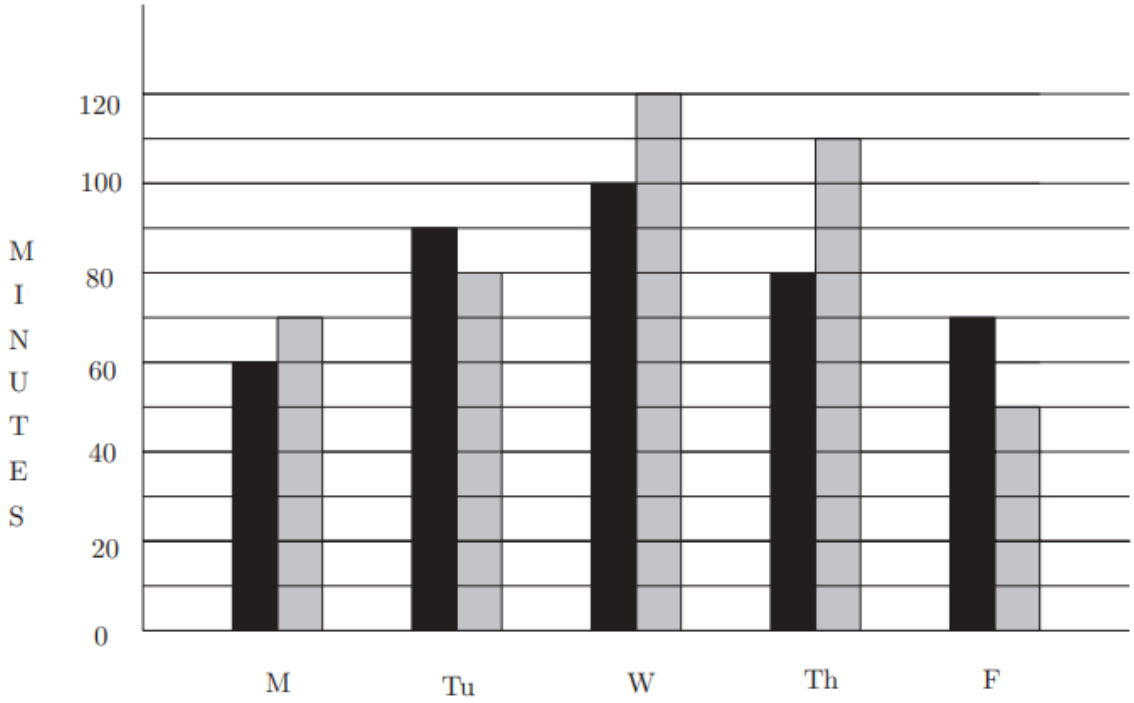
[11] x [20]

(A) 6 (B) 8 (C) 12 (D) 16 (E) 24

11. **(A)** Both 1 and 11 divide 11, so $\boxed{11} = 2$, and since 1, 2, 4, 5, 10, and 20 divide 20, then $\boxed{20} = 6$. The inner expression, $\boxed{11} \times \boxed{20} = 2 \times 6 = 12$. Finally, $\boxed{12} = 6$ because 1, 2, 3, 4, 6, and 12 divide 12.

2011 Q11

11. The graph below shows the number of minutes studied by both Asha (black bar) and Sasha (grey bar) in one week. On the average, how many more minutes per day did Sasha study than Asha?



(A) 6 **(B)** 8 **(C)** 9 **(D)** 10 **(E)** 12

11. **Answer (A):** Asha's study time totals $60+90+100+80+70 = 400$ minutes, for an average of $\frac{400}{5} = 80$ minutes per day. Sasha's total is $70+80+120+110+50 = 430$ minutes, for an average of $\frac{430}{5} = 86$ minutes per day, so Sasha averages 6 minutes more per day than Asha.

OR

The daily differences between Sasha and Asha are $+10$, -10, $+20$, $+30$, and -20 minutes for a total of $+30$ minutes. The average difference is $\frac{30}{5} = 6$ minutes per day.

2012 Q11

11. The mean, median, and unique mode of the positive integers 3, 4, 5, 6, 6, 7, x are all equal. What is the value of x?

(A) 5 **(B)** 6 **(C)** 7 **(D)** 11 **(E)** 12

11. **Answer (D):** Because the mode is unique, it must be 6, so the mean must also be 6. The sum of the seven numbers is $31 + x$, which must be equal to $7 \times 6 = 42$. Therefore $x = 11$. The median of the numbers 3, 4, 5, 6, 6, 7, 11 is also 6.

2004 Q11

11. The numbers -2, 4, 6, 9 and 12 are rearranged according to these rules:

1. The largest isn't first, but it is in one of the first three places.
2. The smallest isn't last, but it is in one of the last three places.
3. The median isn't first or last.

What is the average of the first and last numbers?

(A) 3.5 **(B)** 5 **(C)** 6.5 **(D)** 7.5 **(E)** 8

11. **(C)** The largest, smallest and median occupy the three middle places, so the other two numbers, 9 and 4, are in the first and last places. The average of 9 and 4 is $\frac{9+4}{2} = 6.5$.

1986 Q12

12. The table to the right displays the grade distribution of the 30 students in a mathematics class on the last two tests. For example, exactly one student received a 'D' on Test 1 and a 'C' on Test 2 (see circled entry). What percent of the students received the same grade on both tests?

TEST 1 \ TEST 2	A	B	C	D	F
A	2	2	1	0	0
B	1	4	3	0	0
C	1	3	5	2	0
D	0	0	(1)	1	1
F	0	0	2	1	0

A) 12% B) 25% C) $33\frac{1}{3}\%$ D) 40% E) 50%

12. (D) A student received the same grade on both tests if s/he is counted on the main diagonal (from the top left to the bottom right) of the table. Thus the number of students receiving the same grade on both tests is $2 + 4 + 5 + 1 + 0 = 12$. Consequently $\frac{12}{30} = \frac{4}{10} = 40\%$ of the students received the same grade on both tests.