

### Increase/decrease in amount/percentage 类题

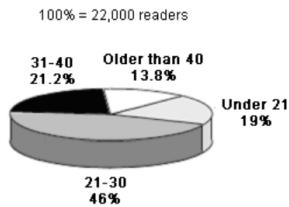
These questions refer to the following table.

POPULATION DATA FOR TEN SELECTED STATES IN 1980 AND 1987				
State	Population (in thousands) 1980	Population (in thousands) 1987	Percent Change in Population, 1980–1987	Population Per Square Mile in 1987
A	23,668	27,663	16.9	177
B	17,558	17,825	1.5	372
C	14,229	16,789	18.0	64
D	9,746	12,023	23.4	222
E	11,864	11,936	0.6	266
F	11,427	11,582	1.4	208
G	10,798	10,784	-0.1	263
H	9,262	9,200	-0.7	162
I	7,365	7,672	4.2	1,027
J	5,882	6,413	9.0	131

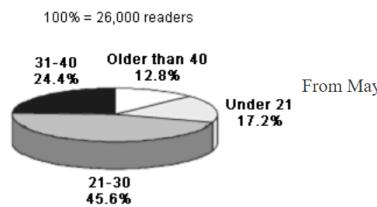
If the population of State I had increased by the same amount each year from 1980 to 1988, approximately what would the population of State I have been in 1988?

- 7,628,000
- 7,676,000
- 7,698,000
- 7,710,000
- 7,716,000

BREAKDOWN OF READERS OF MAGAZINE X  
IN MAY 2010, BY AGE IN YEARS



BREAKDOWN OF READERS OF MAGAZINE X  
IN JULY 2010, BY AGE IN YEARS



From May

to July, approximately what percent of the increase in the total number of readers of Magazine X was the increase in the number of readers in the 31-40 age group?

- 3%
  - 15%
  - 18%
  - 36%
  - 87%
- 有时候还会换其他的说法：  
 A is what percent of B (same as asking what percent of B is A)  
 -> of 后面是分母-> A/B

难点主要在于看懂题目到底问的是什么

首先 percent of 的 of 后面就是分母

还是抓主谓宾最重要，问的是什么就设什么，问 what percent 那么设 x percent

**Commented [YP1]:** 这种问法可以记一下：

What percent of A was B?  
 Percentage = B/A (of 后面是分母)  
 如果容易弄混就设 x  
 $X\% \cdot A = B$   
 $X\% = B/A$

这题还有一个很 tricky 的地方就是算出来是 42% 但是答案没有！看好题目中如果提到了“approximately”那么一定要预判很可能选项不一定会出现一个完全和算出来的一样的，所以只能选择一个最相近的！

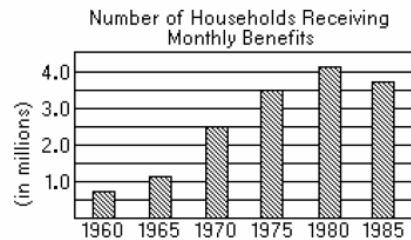
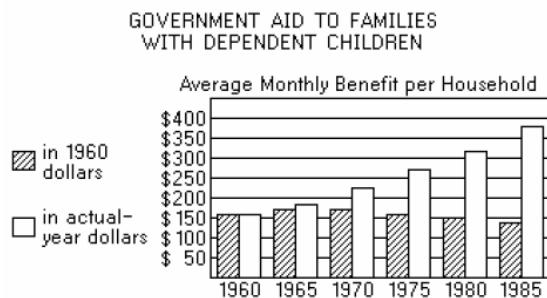
宾语是抓准核心是在问什么  
但是主语和谓语确定要怎么做！

核心是 "was the increase in the number of readers in 31-40 age group"

其实就是在问 31-40 年龄层增长的人数占总增长人数的百分之多少

$$\rightarrow X \times 4000 (\text{increase in total number}) = 1680 (\text{increase in 31-40 age group})$$

These questions refer to the following graphs.



Note: Graphs drawn to scale.

if there is an 80 percent increase from 1970 to 1995 in the number of households receiving monthly benefits, then the increase in the number of households receiving monthly benefits from 1985 to 1995 will be approximately

- A 1,200,000
- B 1,100,000
- C 900,000
- D 700,000
- E 500,000

核心：注意题中描述的 change 到底是 percentage 还是 amount，问的是 percentage  
increase/decrease 还是 amount 的 decrease/increase

如果是 amount 其实还比较容易算，但是如果是 percentage 的变化一定要先转换成具体的 amount  
先去计算，不能直接用 percentage 去算变化

这里给的是具体的 percentage 变化，但是问的是 amount increase 所以要小心不要多算也不要少算！

#### D Average/mean/median/range 等统计量题

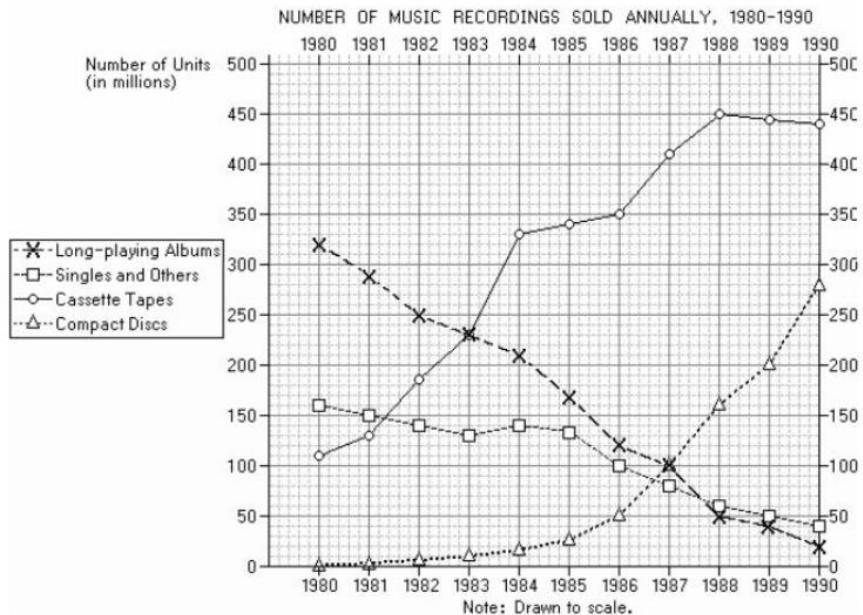
注意：牢记对于任何算平均 xx (年龄/change/增长幅度/销售量等) 的都好，只要是算平均数就一定是总数和/个数

经常会给出人数/销售量总数啥的，但实际是应该看具体有几个量加在一起算和，比如其实是看有几个年份就有几个数

对于年份的间隔要小心计算：e.g. 1990-1995 间隔了 5 年 (90 年到 95 年一共是 6 年，但是间隔了 5 年)

相当于6个数但是5个空  
因为头尾的两个空不算

These questions refer to the following graph.



If the total value of long-playing albums in 1985 was \$1,280 million, then the average(arithmetic mean) selling price of a long-playing album that year was closest to

I

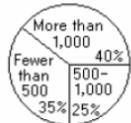
- \$6.00
- \$6.50
- \$7.00
- \$7.50
- \$8.00

## 结合集合/概率类题

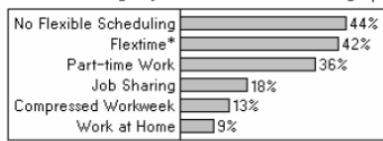
These questions refer to the following graphs.

TYPE OF WORK SCHEDULING IN 300 SURVEYED COMPANIES

Distribution of Companies by  
Number of Employees



Percent of Companies Not Offering Flexible Scheduling  
and Percent Offering Any of Five Flexible-Scheduling Options



\*Flextime is the option given to full-time employees  
to vary the time that the workday begins and ends.

What is the greatest number of the companies surveyed that could have offered both the compressed-workweek option and the work-at-home option?

其实考的就是交集的最大值

- 12
- 22
- 27
- 39
- 66

谁比谁高了/低了/涨了/讲了多少/percentage 题

比之后是分母

## Percentage of/fraction of (of 后面陷阱类题)

These questions refer to the following table.

LABOR FORCE IN SELECTED REGIONS AND IN SELECTED COUNTRIES  
WITHIN THOSE REGIONS—1985, 1990, AND 2000 (PROJECTED)  
(numbers in thousands)

	1985	1990	2000 (projected)	Change from 1985 to 1990		Projected Change from 1990 to 2000	
				Number	Percent	Number	Percent
World .....	2,163,644	2,363,547	2,752,524	199,903	9.2%	388,977	16.5%
North America .....	129,592	135,438	146,561	5,846	4.5	11,123	8.2
Canada .....	12,723	13,360	14,461	637	5.0	1,101	8.2
United States .....	116,800	122,005	132,017	5,205	4.5	10,012	8.2
Caribbean .....	12,287	13,813	16,732	1,526	12.4	2,919	21.1
Latin America .....	140,249	158,285	199,959	18,036	12.9	41,674	26.3
Central America .....	34,186	40,007	53,631	5,821	17.0	13,624	34.1
Europe .....	226,373	231,702	238,186	5,329	2.4	6,484	2.8
Eastern Europe .....	58,036	59,336	62,946	1,300	2.2	3,610	6.1
World .....	2,163,644	2,363,547	2,752,524	199,903	9.2%	388,977	16.5%
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Eastern Europe .....	58,036	59,336	62,946	1,300	2.2	3,610	6.1
Northern Europe .....	40,596	41,363	42,226	767	1.9	863	2.1
Southern Europe .....	56,888	59,019	61,742	2,131	3.7	2,723	4.6
Western Europe .....	70,852	71,984	71,272	1,132	1.6	(712)	-1.0
Asia .....	1,292,138	1,436,522	1,680,559	144,384	11.2	244,037	17.0
China .....	617,906	679,900	760,917	61,994	10.0	81,017	11.9
Japan .....	59,772	62,202	64,352	2,430	4.1	2,150	3.5

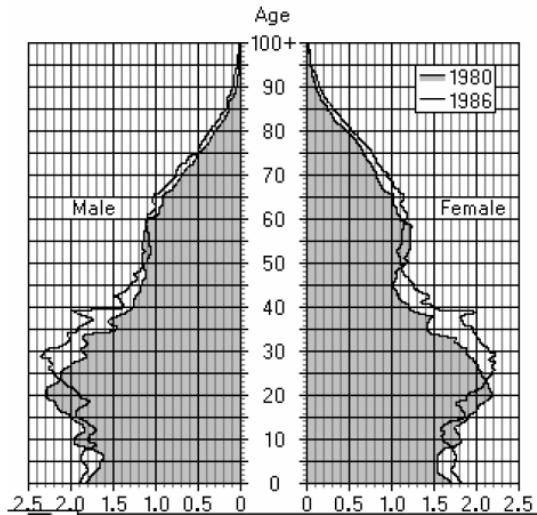
Source: International Labor Office, Economically Active Population Estimates and Projections, 1950–2025

From 1990 to 2000, the project gain in the number of people in the United States labor force is approximately what percent of the project gain for Asia?

- 48%
- 24%
- 17%
- 9%
- 4%

These questions refer to the following graphs, which are drawn to scale. Ages are in whole years completed by December 31.

DISTRIBUTION OF THE UNITED STATES POPULATION BY AGE AND SEX, 1980 AND 1986



The population of females was greater in 1980 than in 1986 for approximately what percent of the ages from 0 to 100 years?

- A 15%
- B 25%
- C 55%
- D 75%
- E 85%

通常的集中问法：A was what percent of B : B 是分母，was 前的主语A是分子  
or what percent of B was A: A 是宾语但是A依旧是分子，B 是分母  
or A accounts for what percent of B, A 是主语, A是分子  
所以核心：找主语/宾语-> 确定分子！  
percentage的题目的解题方法就是在在于找准分母和分子！

核心：这题就是典型的考 percentage of

Percentage of 的“of”后面才是真正要问的东西！这里问的是占所有年龄（从 0-100 岁一共是 101 个年龄）的百分之多少

什么占所有年龄的呢？当然是抽出来的特殊的某几段年龄

条件就是：1980 年的 females 比 1986 你年多的年龄段（不是问人数多了百分之多少！不要自己乱想！看清题目到底问的是什么，如果真的是问人数太难算了吧！）

具体年龄段分别是：8-23 岁和 49-58 岁

注意这里 count 不要数错->8-23 岁一共是 16 个，49-58 是 10 个 ( $23-8+1 = 16$  个,  $58-49+1 = 10$  个)

所以  $16+10/101 \rightarrow$  选一个相近的

注意：图表题经常选择的都是 *approximately* 的答案

**非常难看的图/相互两个图对应类：**



Which best describes the change in the average laptop price in the year following the greatest drop in fourth quarter revenue shown?

- decrease of \$150
- decrease of \$100
- decrease of \$50
- increase of \$50
- increase of \$150

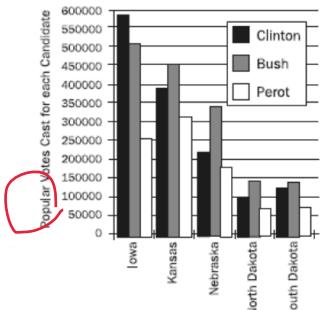
Electoral Returns for Several States  
in the 1992 Federal Election



states listed, approximately what percent of the electoral votes in 1992 were received by Clinton?

- 7%
- 25%
- 29%
- 32%
- 35%

Electoral Returns for Several States  
in the 1992 Federal Election



best estimate of the total number of popular votes received by Bush for the states in which he collected their electoral votes?

- 2.5 million
- 2.0 million
- 1.5 million
- 1.0 million
- 0.5 million

#### ELECTORAL VOTES PER STATE

State	Electoral Votes
Iowa	7
Kansas	6
Nebraska	5
North Dakota	3
South Dakota	3

What is the

Note: Candidates who received the most popular votes in a state received all the electoral votes for that state.

**Commented [YP2]:** 表 2 说必须要 received most popular votes(也就是三个人中最多的)才能得到所有的 electoral votes

题目问在 Bush 收获 electoral votes 的州中 total number of popular votes 是多少!

算总数不难算，但是核心是给的限制条件是他收获 electoral votes 的州->所以必须看 Bush received the most popular votes 的州是哪些再算!

图表题下面给的 note 通常是蛮重要的！尤其是给了两个图或者以上的要小心图表之间相互的联系！

图表题非常喜欢给出限制条件！限制条件一定要看清楚之后再计算！

2000 Census Data			
Location	Population	Area in square miles (nearest sq mi)	
		Land Area	Water Area
Alaska	626,932	571,951	91,316
District of Columbia	572,059	61	6
Hawaii	1,211,537	6,422	4,508
Montana	902,195	145,552	1,489
Ohio	11,353,140	40,948	3,876
United States	281,421,906	3,537,438	256,644

Which location has the largest percentage of water area to the total area?

- Alaska
- District of Columbia
- Hawaii
- Montana
- Ohio

**Commented [YP3]:** 这题不难，但是要巧算

首先  $\text{total area} = \text{land area} + \text{water area}$

问哪个的 water area 占比最大

那么应该是  $\text{water area}/(\text{water area} + \text{land area})$

首先要让这个分式变大，**首先分子也就是 water area 要尽可能的大，而且分母不能过大，要尽可能的分子和分母相近那么可以使得整体越大**

所以可以排除掉 Montana 和 Ohio 还有 Columbia  
比较 Alaska 和 Hawaii

APPARENT FAHRENHEIT TEMPERATURES  
DUE TO WIND-CHILL FACTOR  
(corresponding to actual temperatures and wind speeds)

WIND SPEEDS (miles per hour)	ACTUAL TEMPERATURES (degrees Fahrenheit)				
	-10	0	10	20	30
5	-15	-5	7	16	27
10	-34	-22	-9	3	16
15	-45	-31	-18	-5	9
20	-53	-39	-24	-10	4
25	-59	-44	-29	-15	1
30	-64	-49	-33	-18	-2
35	-67	-52	-35	-20	-4
40	-69	-53	-37	-21	-5

If the actual temperature is 13 degrees Fahrenheit and the wind speed is 14 miles per hour, then the apparent temperature could be

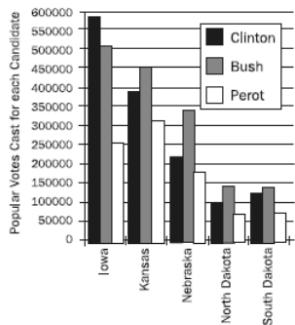
- A 5 degrees Fahrenheit
- B -12 degrees Fahrenheit
- C -20 degrees Fahrenheit
- D -25 degrees Fahrenheit
- E -32 degrees Fahrenheit

Commented [YP4]: 核心是先确定范围

然后确定 min 和 max

所以应该选择的温度在 -18 到 3 之间

Electoral Returns for Several States  
in the 1992 Federal Election



ELECTORAL VOTES PER STATE

State	Electoral Votes
Iowa	7
Kansas	6
Nebraska	5
North Dakota	3
South Dakota	3

**Note:** Candidates who received the most popular votes in a state received all the electoral votes for that state.

Based on the data shown, which statements are true?

Choose all that apply

- The median value of the popular vote for Clinton was less than the median value of the popular vote for Bush.
- The range of the popular vote for Bush was greater than the range of the popular vote for Clinton.
- The percent of the popular vote received by Bush in each state was less than the percent received by Clinton in each state.
- The popular vote received by Perot in each state was at least half of the popular vote received by Bush in each state.
- The least number of popular votes were recorded in South Dakota.

**Commented [YP5]:** E 要看的是三个人加起来的总 popular votes 数, 所以最少的应该在 ND

这个图比较关键的一点就是抓准两个图分别 emphasize 的是什么

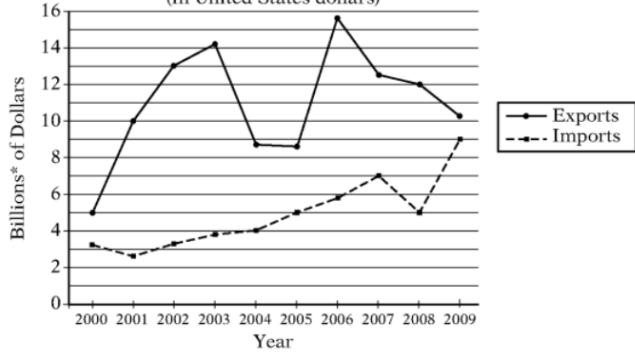
左图更着重反映 popular votes 右图反映 electoral votes 同时 note 部分还讲了两个图的关系 (如果得到了 most popular votes 那就会得到所有的 electoral votes)

给了两个图：1) 考虑可能会有考相互联系的题目

2) 两个图的关系是什么，相同和不同处在哪儿？两个图分别着重反映的是什么？

3) 做题的时候一定要判断好这道题是问的问题是based on one of the plot, or based on both of the plots 这个很关键！不能够是问一个图的，但是base on 两个图做的就是错的！

VALUE OF IMPORTS TO AND EXPORTS FROM COUNTRY T, 2000–2009  
(in United States dollars)



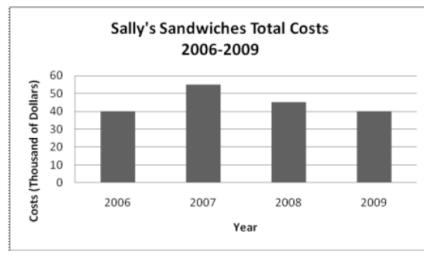
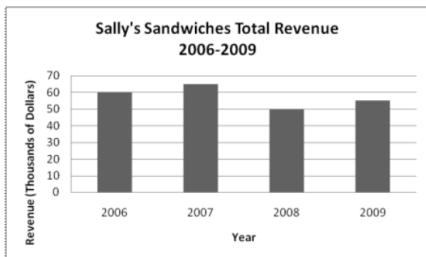
\*1 billion = 1,000,000,000

Which of the following is closest to the average (arithmetic mean) of the 9 changes in the value of imports between consecutive years from 2000 to 2009?

- A \$260 million
- B \$320 million
- C \$400 million
- D \$480 million
- E \$640 million

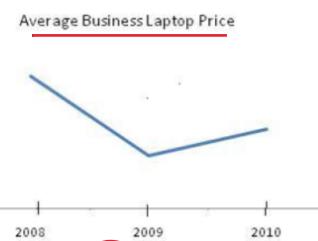
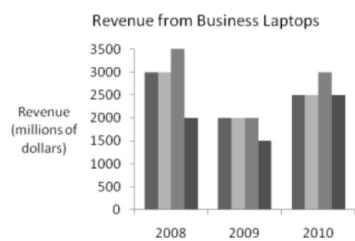
注意这里求的是9个changes的平均数，所以用的是2000-2009年的年间隔（总共10年，间隔9年）  
题目也提示了是9个changes所以是 $\div 9$ 不是 $\div 10$ ！  
但是如果是求平均每年的话就是要 $\div 10$ ！（2000-2009年是10年！但是一共9个间隔）

利润相关



What was the largest gross profit of each of the years from 2006 to 2009?

- \$5,000
- \$10,000
- \$15,000
- \$20,000
- \$25,000



If the revenue shown is based on the average laptop price per year, how many laptops, in millions, were sold in 2009?

- 1
- 7.5
- 9
- 10
- 75

看问题核心：主语 谓语和宾语  
问词也很重要 看问的量具体是什么  
有没有限定词（年份/具体某物种/名字/产品）  
给了两个图：是不是两个图都要用，有没有什么联系？  
单位也要看好！

注意revenue是税收！不要总觉得是利润！

#### Commented [YP7]: 这题不难算

核心的一个知识点 review:

Gross profit(毛利) = 销售收入 (revenue) - 销售成本

但是只要是设计利润，就记住核心的公式：

利润=收入(or 售价) - 成本

如果要算利润率再除成本即可

#### Commented [YP8]: 总税收= 平均售价 (单价) \* 销售量

这种题就是典型的根据给条件和要求的量建立数学关系

看好限定条件： 2009 年

图表题看好横纵坐标不用说了吧  
注意好横纵坐标用的单位！