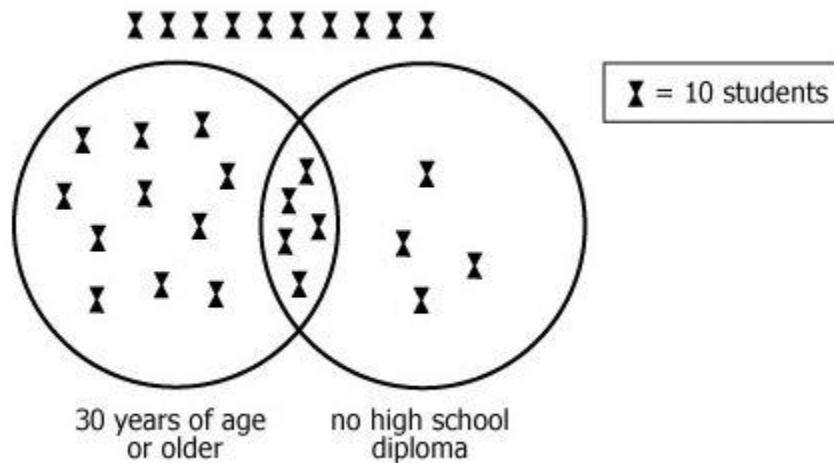


Question 1-2



Refer to the pictograph of a survey of students at Central Community College. Each symbol represents 10 students in a sample of 300. Use the drop-down menus to complete each statement according to the information presented in the diagram.

1. If one student is selected at random from the 300 surveyed, the chance that the student will be under 30 or a high school graduate or both is

- A. 1 out of 6
- B. 1 out of 3
- C. 2 out of 3
- D. 5 out of 6

2. If one student is selected at random from the 300 surveyed, the chance that the student will be both under 30 and a high school graduate is

- A. 1 out of 6
- B. 1 out of 3
- C. 2 out of 3
- D. 5 out of 6

3. An engineering firm is organized so that each of its T team leaders manages exactly P project managers, and each project manager manages exactly D designers. If $P = 4$, which of the following represents a possible combination of the number of team leaders and designers at the firm?

Team Leaders	Designers	
<input type="radio"/>	<input type="radio"/>	3
<input type="radio"/>	<input type="radio"/>	4
<input type="radio"/>	<input type="radio"/>	18
<input type="radio"/>	<input type="radio"/>	52
<input type="radio"/>	<input type="radio"/>	112
<input type="radio"/>	<input type="radio"/>	134

4. Of the 20 members in a local group of Mensa International, 40% are philosophers and the rest are not. Among those who are not philosophers, the ratio of those who hold a PhD to those who do not hold a PhD is 1:3. Among those who are philosophers, the ratio of those who hold a PhD to those who do not hold a PhD is 7:1. For all 20 members, the ratio of those who hold a PhD to those who do not is $x : y$, where x and y have no common factor that is greater than 1.

Select for x and for y values that are jointly consistent with the information provided.

Make only two selections, one in each column. (The numbers are the same for X and Y)

x y

- 1
- 2
- 3
- 4
- 5

Question 5-6

A certain start-up company that makes specialized computer games with historical themes is to hold a meeting of the five partners. Prior to the meeting, three of the partners have circulated memos about Xanthia.

From the finance expert

The amount of money we have spent on developing Xanthia has been much more than we have spent on any other of our games. The returns, as yet, have not been sufficient even to cover our costs. I propose a limit of \$150,000 for next year's marketing budget for Xanthia. If sales do not rise by the end of the year to a level that would, if continued, lead to at least a modest profit on

our investment by the end of two or three years, I suggest that we cut our losses and divert our attention to other games.

From the marketing expert

As yet our exciting new game, Xanthia has not gained attention in the media. I would like to see a sizable budget increase this coming year to something in the order of \$300,000 for advertising. I feel that once we reach a certain level of media exposure, further expense will be minimal as knowledge of the product will spread by word of mouth and the social media. Without this initial push, the game might languish and our company might never recover the development costs, which have been much higher than the average for our other games.

From the company founder

Xanthia adds a new dimension to our offerings. It is true that development costs have been high, but we should add the costs to the low costs of our other games and not, at least for the next two years, look at any game as a free-standing product. It is more important for us to grow our position in the market. To do this we have to launch more games this year. We should market Xanthia along with all the games we offer and as such we have to participate in specialist fairs and competitions, rather than advertising any one product in the press or on TV.

Q5. It can be inferred that

Yes No

- Only the company founder would be interested in launching new games in the next year
- All three partners believe that the development costs for Xanthia have been above the average for the company's games
- Less than \$150,000 has been spent on marketing Xanthia in the current year

Q7. It can be inferred that

Yes No

- The attitudes of the finance and marketing experts to development costs are more similar to each other than to the views of the company founder
- It is probable that one of the main points on the agenda for the meeting is marketing strategies
-

Question 8

Journalist: Workers at Facsum Inc. have threatened to strike if management does not meet their demands for an immediate 5% pay raise and a paid lunch break. Further, workers are insisting that the company rehire 12 employees who were laid off for complaining about substandard

wages and working conditions. It is well-known that Facsum reported that negative profits in 3 of its previous 4 quarterly earnings reports. We believe a strike is inevitable.

Identify an assumption required by the journalist's argument and a fact that, if true, would most strongly support the required assumption. Make only two selections, one in each column.

Assumption	Supporting Fact	
<input type="radio"/>	<input type="radio"/>	The workers would likely be willing to compromise with respect to the paid lunch break.
<input type="radio"/>	<input type="radio"/>	When the leaders of a union call for a strike, the members inevitably vote to strike.
<input type="radio"/>	<input type="radio"/>	Facsum is unwilling to negotiate with the workers.
<input type="radio"/>	<input type="radio"/>	The majority of the losses were due to a significant decline in profit margins.
<input type="radio"/>	<input type="radio"/>	The 12 laid-off employees were not laid off for any performance-related reasons.
<input type="radio"/>	<input type="radio"/>	Facsum likely does not have sufficient cash flow or cash reserves to support increased expenses.

Question 9

Two brothers were talking about how the older they get, the less significant the difference in their ages seems to be. Specifically, they noticed that, 20 years ago, the ratio of their ages (in years) was 1:2; now, the ratio is 5:6; and, 20 years from now, the ratio will be 9:10.

Based on the information provided, select for Difference in ages the difference, in years, in their ages, and select for Sum of ages now the sum, in years, of their ages now. Make only two selections, one in each column.

Difference in ages	Sum of ages now	Values
		5
		10
		15
		20
		35
		55

Question 10

Marketing Executive

An American museum of East Asian art reviewed its acquisitions strategy in 2009. As part of that review, a marketing executive recommended purchasing more ceramics, jades, and paintings of people or landscapes because visitor surveys indicated that those types are of greatest interest to museumgoers in the region.

Museum's curator

The museum's curator recommended purchasing more twenty-first-century East Asian art—particularly abstract (nonrepresentational) paintings and sculptures—because the museum's collection is weakest in that area.

Among the East Asian works of art described below, select a painting and a sculpture, each of which satisfies at least one of the recommendations made by the marketing executive and at least one of the recommendations made by the curator. Make only two selections, one in each column.

- A. Painting of girl's face, in shades of blue and red, acrylic and oil on canvas, 2006
- B. Chinese brush painting of fish in a tank, ink on paper, 2002
- C. Fish-shaped vase with dragon head, jade, 1849
- D. Abstract sequence of interconnected curves, ceramic, 2008
- E. Fossil-like, jagged sculpture suspended from cables, stainless steel, aluminum, fiberglass, and cable, 2004

Question 11

A gardener is planning a garden layout. There are two rectangular beds, A and B, that will each contain a total of 5 types of shrubs or flowers. For each bed, the gardener can choose from among 6 types of annual flowers, 4 types of perennial flowers, and 7 types of shrubs. Bed A must contain exactly 1 type of shrub and exactly 2 types of annual flower. Bed B must contain exactly 2 types of shrub and at least 1 type of annual flower. No flower or shrub will be used more than once in each bed.

Identify the number of possible combinations of shrubs and flowers for bed A and the number of possible combinations of shrubs and flowers for bed B. Make only two selections, one in each column.

Bed A----Bed B----Combinations

- 520
- 630
- 756
- 1,028
- 2,242
- 2,436

Question 12

The table lists all the employees of the Metro Corporation's human resources department. Each employee's immediate supervisor is identified by the supervisor's employee ID number displayed in the last column on the right of the table. If one employee, say A, supervises another, say B, then A also supervises every employee supervised by B. Note that the hire date is given in the format month/day/year.

Sort By: Select...

Employee ID	First name	Surname	Hire date	Supervisor's employee ID
1	Sally	Lee	4/12/2002	6
2	Lauren	Schickler	3/16/2007	10
3	Jonathan	Ogura	10/8/1998	1
4	Shana	Serpaio	11/23/2000	9
5	Michele	Dockett	5/11/2002	11
6	Ben	Rivera	9/15/2003	14
7	Lee	Patel	8/7/2010	3
8	Eli	O'Neill	6/17/2009	11
9	Ondrea	Ribah	3/12/1992	1
10	Ben	Rubenstein	12/12/2005	6
11	Jonica	Diaz	1/30/2004	4

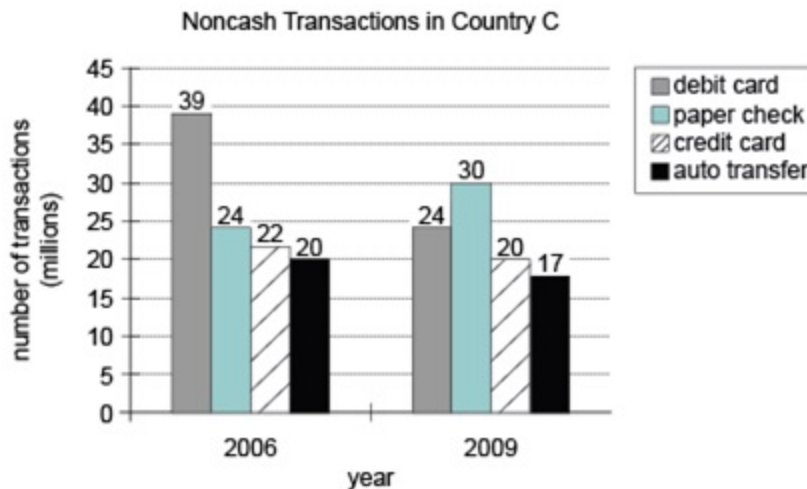
For each of the following, select Yes if it identifies an employee who, within the human resources department, supervises no one and who has at least S supervisors within the human resources department above her or him. Otherwise, select No.

Yes No

- ☐ ☐ O'Neill
☐ ☐ Patel
☐ ☐ Schickler

Question 13-14

In Country C, the number of transactions made by various non-cash methods in 2006 and 2009 are shown in the graphic. All other transactions were made with cash. (see the graph below)



13. If the total value of all credit card transactions in 2009 was 10% more than the total value of all credit card transactions in 2006, then the average (arithmetic mean) value of credit card transactions increased by _____ % from 2006 to 2009.

- A) 2.0
- B) 17.4
- C) 21.0
- D) 22.0

Show Spoiler
OA

14. The number of _____ transactions increased by 25% from 2006 to 2009.

- A. Debit Card
- B. Paper Check
- C. Credit Card
- D. Auto Transfer

15. Archaeologist: There were several porcelain-production centers in 18th-century Britain, among them Bristol, Plymouth, and New Hall. Each center developed a unique recipe for its porcelain that might include flint glass, soapstone, bone ash, clay, quartz, and so on. We will therefore be able to determine, on the basis of compositional analysis, where the next cup we recover from this archaeological site was made.

Indicate two different statements as follows: one statement identifies an assumption required by the archaeologist's argument and the other identifies a possible fact that, if true, would, provide significant logical support for the required assumption.

Indicate two different statements as follows: one statement identifies an *assumption required* by the archaeologist's argument and the other identifies a *possible fact* that, if true, would, provide significant logical support for the required assumption.

	39A.	39B.	
	Assumption required	Possible fact	
A	<input type="radio"/>	<input type="radio"/>	Other cups have been recovered from the archaeological site, all of which were made of porcelain.
B	<input type="radio"/>	<input type="radio"/>	Some of the cups recovered from the archeological site were not made of porcelain.
C	<input type="radio"/>	<input type="radio"/>	The next cup to be recovered from the site will likely be made of porcelain.
D	<input type="radio"/>	<input type="radio"/>	Porcelain makers often traveled between centers, experimenting with one another's recipes.
E	<input type="radio"/>	<input type="radio"/>	There was considerable overlap of materials in the recipes used by the various centers.
F	<input type="radio"/>	<input type="radio"/>	Most porcelain in 18th-century Britain was made at one of the several centers.

16. Professor A: The field of Artificial Intelligence (AI) was originally aimed exclusively at the construction of thinking machines, that is, computer systems with human like general intelligence. But the difficulty of this goal of general AI has led researchers to shift their focus to producing narrow AI systems: software displaying intelligence regarding specific tasks in relatively narrow domains such as chess. The problem is, narrow AI and general AI are fundamentally and entirely different pursuits. If modeling general intelligence is the objective, AI researchers must redirect themselves toward the original goals of the field and confront the more difficult issues of human-like intelligence.

Professor B: Narrow AI work is producing real results today, such as chess-playing programs that can defeat any human, programs that translate speech to text, and programs that can drive automated vehicles. Achievements in this field will continue to flow, and eventually narrow AI will lead to the creation of systems with general intelligence.

On the basis of the given information, select a claim that Professor A would most likely disagree with, and select a claim that Professor B would most likely disagree with. Select only two claims, one in each column.

Professor A: The field of Artificial Intelligence (AI) was originally aimed exclusively at the construction of *thinking machines*; that is, computer systems with human-like general intelligence. But the difficulty of this goal of general AI has led researchers to shift their focus to producing narrow AI systems: software displaying intelligence regarding specific tasks in relatively narrow domains such as chess. The problem is, narrow AI and general AI are fundamentally and entirely different pursuits. If modeling general intelligence is the objective, AI researchers must redirect themselves toward the original goals of the field and confront the more difficult issues of human-like intelligence.

Professor B: Narrow AI work is producing real results today, such as chess-playing programs that can defeat any human, programs that translate speech to text, and programs that can drive automated vehicles. Achievements in this field will continue to flow, and eventually narrow AI will lead to the creation of systems with general intelligence.

On the basis of the given information, select a claim that *Professor A* would most likely *disagree* with, and select a claim that *Professor B* would most likely *disagree* with. Select only two claims, one in each column.

Professor A disagrees	Professor B disagrees	
<input type="radio"/>	<input type="radio"/>	The creation of computer systems that display human-like general intelligence is an important goal.
<input type="radio"/>	<input type="radio"/>	The creation of systems that display intelligence regarding specific tasks is an especially important step toward the creation of systems with general intelligence.
<input type="radio"/>	<input type="radio"/>	Systems with general intelligence are more difficult to create than are systems with narrow intelligence.
<input type="radio"/>	<input type="radio"/>	Research in the narrow AI field is not likely to lead to significant breakthroughs in the general AI field.
<input type="radio"/>	<input type="radio"/>	The original aim of AI research was to create systems with general intelligence.
<input type="radio"/>	<input type="radio"/>	The research into narrow AI is not producing results that real people can benefit from today.

17. Boppo is a game played by 2 teams for a fixed duration (number of minutes). It is played with 8 members of each team on the floor—actually playing the game—at all times. At any time during the game, exactly one player from each team must be off the floor—not actually playing. Thus by taking a break, by entering the game after it starts, or by leaving before it finishes, every player on each team must spend exactly 5 minutes resting or otherwise not playing.

In the table, identify a number of players per team and a number of minutes per game that are consistent with the given information about Boppo. Make only two selections, one in each column.

In the table, identify a number of players per team and a number of minutes per game that are consistent with the given information about Boppo. Make only two selections, one in each column.

Number of players	Number of minutes	
<input type="radio"/>	<input type="radio"/>	9
<input type="radio"/>	<input type="radio"/>	11
<input type="radio"/>	<input type="radio"/>	18
<input type="radio"/>	<input type="radio"/>	30
<input type="radio"/>	<input type="radio"/>	45
<input type="radio"/>	<input type="radio"/>	50

18.

Sort By:

Select...



Address	Builder	City section	Size (square ft)	Price (thousands)	Rating (out of 10)
109 J	Pitts	SE	200	167	9.2
1100 M	Pitts	NE	125	195	8.4
120 G	Bildrite	SW	800	60	6.2
1209 H	Bildrite	SW	700	56	5.5
190 T	Dexter	SW	1,200	89	8.8
2755 Y	Pitts	SE	345	135	8.75
34 S	Bildrite	SW	450	12	7.2
459 R	Dexter	SW	1,900	96	8.5
512 G	Accurate	NW	1,400	120	9.2
5589 V	Accurate	NW	140	79	7.1
670 N	Pitts	NE	1,350	190	9.8
7878 B	Pitts	SW	1,250	125	9.9

The table gives information on 12 new home addition and renovation projects, in competition for inclusion in a television program featuring innovative styles. The producers of the program intend to make a selection based on one or more of the following criteria: city section (among a total of four), size in square feet of the project, cost of the project in dollars, and rating of innovativeness.

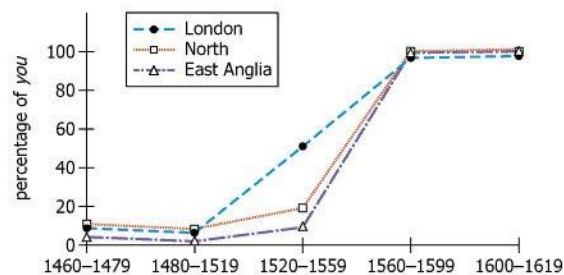
The following statements pertain to various possible selection criteria. Select Yes if the statement must be true on the basis of the given information; otherwise select No.

The following statements pertain to various possible selection criteria. Select Yes if the statement must be true on the basis of the given information; otherwise select *No*.

Yes No

- ☐ ☐ If the 5 with the highest ratings are selected, then one builder and one city section will not be featured in the program.
- ☐ ☐ Selecting the top 2 and bottom 2 by price leaves out exactly half of the city sections and half of the builders.
- ☐ ☐ Selecting the top 3 and bottom 3 by square footage leaves out exactly one of the builders entirely.

Question 19-20



The graph indicates the results of a survey of written material from three areas in early modern England. The graph shows the percent of use of *you* when either *you* or *ye* would be appropriate. Select the option from each drop-down menu that creates the statement that most accurately reflects the information provided.

The area of early modern England that was first to favor the use of *you* over *ye* was London.

In the surveyed writings from the area of the North between 1520 and 1559, *you* constituted 20% of the instances in which either *you* or *ye* would have been appropriate.

The graph indicates the results of a survey of written material from three areas in early modern England. The graph shows the percent of use of *you* when either *you* or *ye* would be appropriate.

Select the option from each drop-down menu that creates the statement that most accurately reflects the information provided.

Q.19 The area of early modern England that was first to favor the use of you over ye was _____

- A. London
- B. North
- C. East Anglia

Q.20 In the surveyed writings from the area of the North between 1520 and 1559, you constituted _____ of the instances in which either you or ye would have been appropriate.

- A. 10%
- B. 20%
- C. 40%
- D. 50%