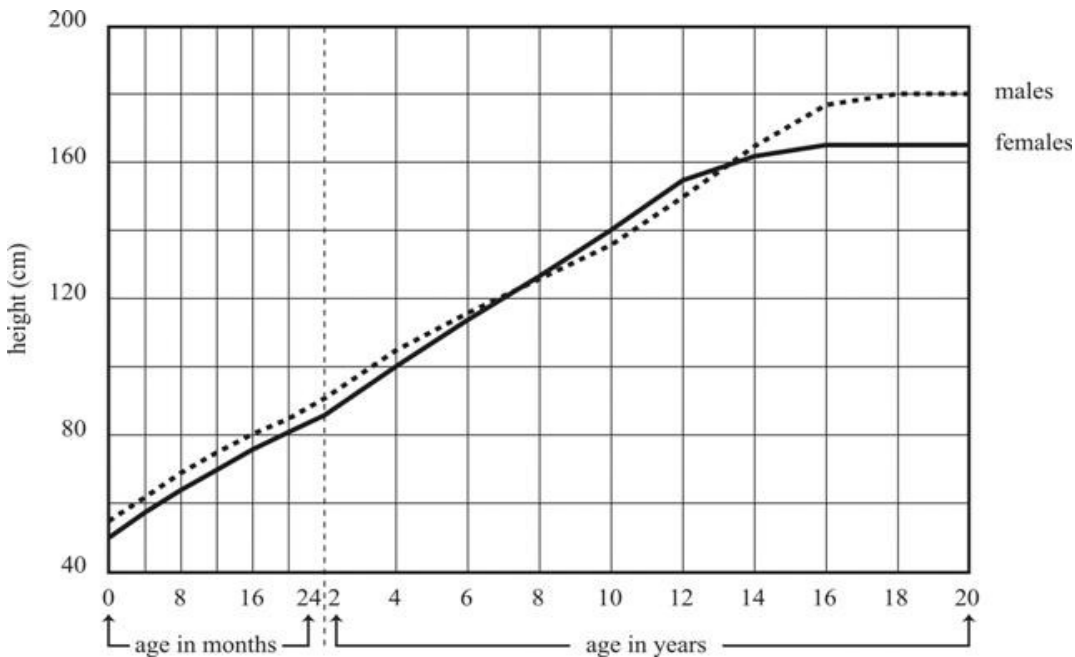


Quantitative Reasoning

Dealing with information

Questions 1 and 2 relate to the following information:

In order to produce clothes that fit, clothing manufacturers need to know the typical heights of people of given ages. Figure 1 shows the average height of males and females from birth to 20 years of age.



In this unit 'average' refers to 'mean'.

1 Figure 1 indicates that the main reason that 20-year-old men are (on average) 15 cm taller than 20-year-old women is that

- A female babies are that much shorter than male babies at birth.
- B females grow at a slower rate than males for the first two years.
- C males grow at a faster rate than females from age two to age seven.
- D males grow for a longer period of time than females.

2 According to Figure 1, which one of the following is the best estimate of the average increase in height of boys between their first birthday and their fifth birthday?

- A 35 cm
- B 55 cm
- C 75 cm
- D 110 cm

Questions 3 and 4 relate to the following information:

Figure 2 (below) shows the results of a study carried out in the USA. Approximately 250 000 men were followed over 12 years, and for those who died, the cause of death was established. The graph shows the variation with average alcohol intake of the mortality rate for three such causes, together with the variation in mortality rate from all causes. Coronary Heart Disease (CHD) is a particular and common cardiovascular disease. Mortality rates are shown as a proportion of the deaths that occur with zero alcohol intake. Also shown are the average alcohol intakes for USA and France.

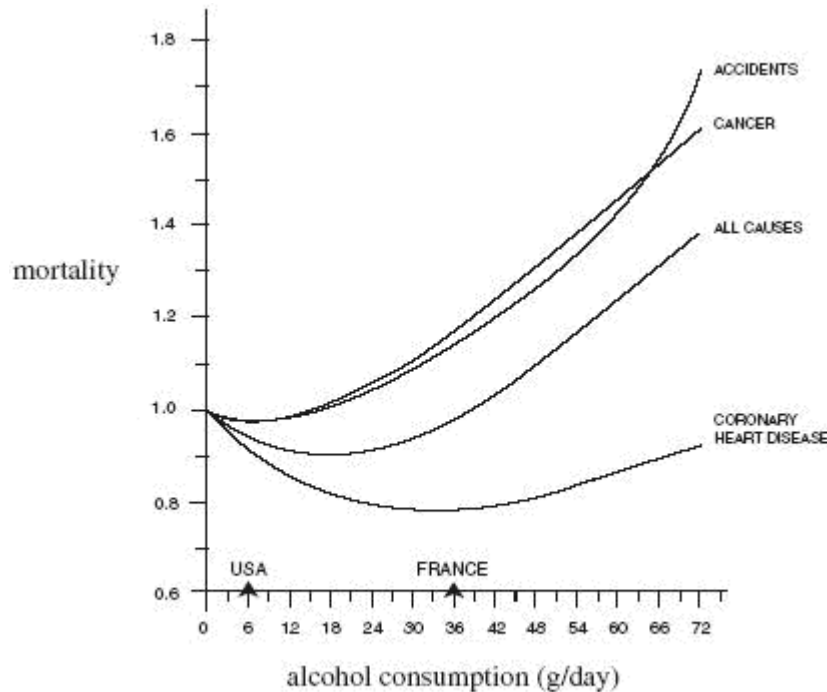


Figure 2

3 According to the figure, compared with men who consume little or no alcohol, men who regularly consume 18 g of alcohol (about one standard drink) per day are most likely to show mortality rates that are:

- A decreased for CHD and accidents, and increased for cancer.
- B decreased for CHD and cancer and increased for accidents.
- C decreased for CHD and unchanged for accidents and cancer.
- D increased for CHD and accidents, and increased for cancer.
- E increased for CHD and unchanged for accidents and cancer.

4 Suppose that all relevant factors in a French population of males are similar to those for the men in this USA study, except for levels of daily alcohol consumption.

Which one of the following is the best estimate of the difference in expected mortality from CHD for French men compared with that for USA men?

- A about 10% less.
- B about 30% less.
- C about the same.
- D about 10% more.
- E about 30% more.

Acknowledgements

Questions 3 - 4: Renaud, S for the extract from .The French Paradox., Proceedings from the Wolf Blass Foundation International Wine and Health Conference, Ed. C S Stockley, The Wolf Blass Foundation Inc, 1996.

Problem Solving

Questions 5, 6 and 7 relate to the following information:

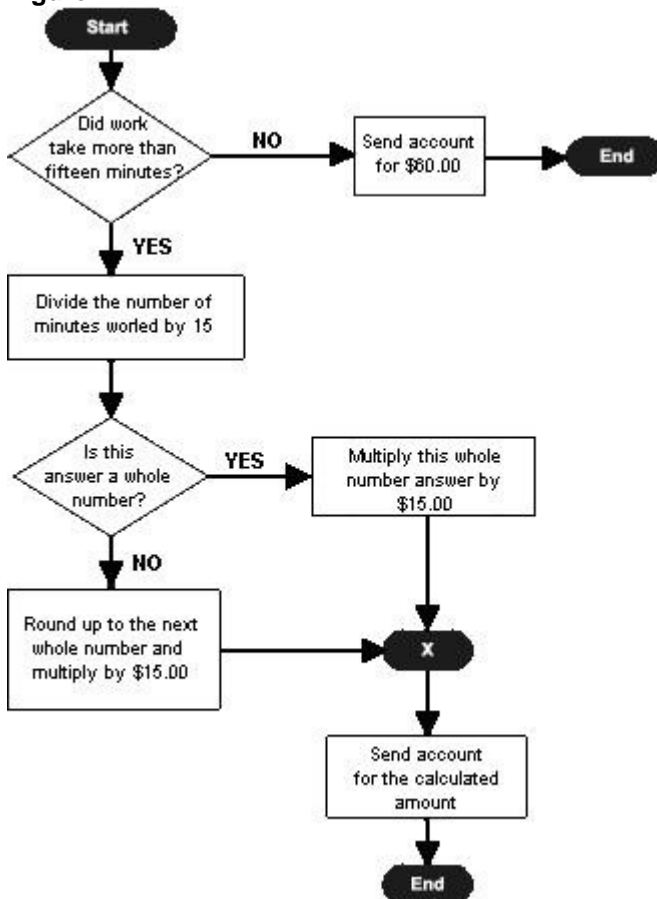
Dale, a plumber, charges for work done in people's homes as follows: \$60.00 to go to the home, which includes a maximum of 15 minutes work; plus \$15.00 for any part of each 15 minutes' work after the first 15 minutes.

5 Dale calls at Mrs Acorn's home and does an hour and twenty minutes' work. His charge will be:

- A \$75.00
- B \$90.00
- C \$120.00
- D \$135.00
- E \$150.00

Dale wants to set up a computer program to automate his billing of customers. The illustration below (Figure 1) shows the stage he has reached in his planning of the flow chart for the program. There is nothing in the circle marked with an X at this stage.

Figure 1



6 Without an instruction at X, a problem with this program is that it will:

- A always charge customers too little.
- B always charge customers too little, except for periods of 15 minutes or less.
- C always charge customers too much, except for periods of 15 minutes or less.
- D only charge customers correctly for periods of time that are exact multiples of 15 minutes.
- E only charge customers correctly for periods of time that are not exact multiples of 15 minutes.

7 Which one of the following instructions at position X would correct Dale's program?

- A** subtract \$15.00
- B** add \$45.00
- C** subtract \$45.00
- D** add \$60.00
- E** subtract \$60.00

Question 8 relates to the following information:

A student wants to produce copies of rectangles of different sizes for a project. In order to do this, a photocopier with an ENLARGE / REDUCE control is to be used. If the ENLARGE / REDUCE control of the photocopier is set to 200%, each side of the resulting rectangle will be twice as long as in the original. If the ENLARGE / REDUCE control of the photocopier is set to 300%, each side of the resulting rectangle will be three times as long as in the original. Suppose the original rectangle is 8 cm × 12 cm (i.e. area is 8 cm × 12 cm = 96 square centimetres).

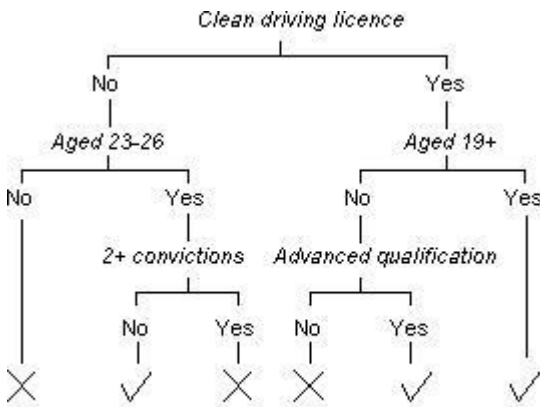
8 In order to produce a rectangle of area 2400 square centimetres, the ENLARGE / REDUCE control of the photocopier should be set to:

- A** 400%
- B** 450%
- C** 500%
- D** 550%
- E** 600%

Critical Reasoning

Decision Making

Question 9 relates to the following information:



The above diagram sets out the criteria by which a car-insurance firm bases its offers of cover to young drivers. It makes concessions to young drivers who have passed an approved advanced driving test or have a clean licence (no convictions for traffic offences).

The following drivers have applied for insurance from the company:

- Andrea, who is just 19 and has an advanced qualification
- Balvir, who is 22 with one conviction and no advanced qualification.
- Callum, who is 18, and has an advanced qualification and a clean licence.
- Delia, who is a 24-year-old and has neither a clean licence nor an advanced qualification.

9 On the basis of the information above, which of the four is/are definitely refused insurance by the company?

- A Just Andrea
- B Just Balvir
- C Balvir and Callum
- D Balvir and Delia
- E Just Delia

Argumentative Analysis**Question 10**

Several large scale trials have shown, at a very high level of statistical significance, that those who take no alcoholic drinks are more likely to suffer from heart disease than those who drink moderate amounts of alcohol. The researchers have concluded that a moderate intake of alcoholic drinks protects the body against heart disease. Which one of the following is a reason why this conclusion might be unsafe?

- A** If enough trials are carried out, some will show statistical significance purely by chance.
- B** Those people drinking no alcohol may have other factors in their diet or lifestyle which increases their susceptibility to heart disease.
- C** A significant number of people refuse to answer questions about alcohol consumption.
- D** By-products of alcohol production other than alcohol itself may be the reason for the protection against heart disease.

Question 11

The numbered statements below are from a debate for and against the topic that:

Violent TV and videos contribute to real-life violence.

For each of the questions (1-3) you are to choose the alternative (A - D) that most appropriately describes the relationship of the statement to the topic of the debate.

The statement:

- A** is most likely part of the debate for the topic.
- B** is most likely part of the debate against the topic.
- C** could possibly be part of the debate for or against the topic.
- D** is not relevant to either the debate for or against the topic.

Questions:

- 1** Violence is never an acceptable course of action.
- 2** Violent entertainment desensitises viewers.
- 3** The accessibility and the graphic impact of TV make it an especially powerful medium.

Verbal & Plausible Reasoning

Interpretation

Questions 12, 13 and 14 relate to the following information:

The composer Ludwig van Beethoven lived from 1770 to 1827. The following passage discusses how his music relates to the Classical style of the eighteenth century and the Romantic style of the nineteenth century.

There is no doubt that Beethoven was attracted to the spiritual ideals of the Romantic movement. But he was a product of the eighteenth century: his achievement lay in taking the elements of the Classical style and resynthesising them, not abandoning them. The Classical style - exemplified by Mozart - was the result of bringing into balance the opposing forces of form and content; the Romantic style came when the content overflowed the form. Melodies became less clearly defined, and harmony lost its structural foundations and took on colour and variety instead. Beethoven was drawn to these new ways, but his nature was such that he needed to mould the raw material of his composition to achieve the tension that comes from bringing strength under control. He never faltered in his belief that it was the duty of the creative artist to organise his material. It was in such organisation that the form of his compositions lay. This discipline and strength of purpose gives his work its singular authority.

12 By saying that Beethoven was a product of the eighteenth century the writer means that

- A he worked primarily within the Classical tradition.
- B he was a typical and conventional composer of his era.
- C in his own time Beethoven's music was regarded as Romantic.
- D only Beethoven's contemporaries could truly appreciate his genius.

13 According to the writer, Beethoven believed that composers should

- A cling faithfully to traditional musical forms.
- B deliberately control and direct their composition.
- C display the opposition between form and content.
- D express their creative impulses without constraint.

14 In the writer's view, what makes Beethoven's music unique is its

- A theatricality.
- B grand vision.
- C formal anarchy.
- D regulated power.

Acknowledgements

Questions 1 - 3: MacDonald Educational Ltd for the extract (adapted) from *The Book of Music*, edited by G. Rowley, 1977.

Answers

Dealing with information

1-D; 2-A; 3-C; 4-A

Problem Solving

5-D; 6-B; 7-B; 8-C

Decision Making

9-B

Argumentative Analysis

10 - B; 11- 1-D, 2-A, 3-A

Interpretation

12-A; 13-B; 14-D