🇬🇧 TEST YOUR SKILLS

1 The following raw data were obtained from the ages of 31 people interviewed at a cinema one Saturday afternoon:

21, 17, 24, 23, 43, 42, 14, 51, 22, 18, 17, 15, 16, 23, 33, 21, 12, 13, 34, 22, 15, 12, 17, 22, 28, 29, 32, 38, 12, 11, 8.

What is the median for these data? Is it the same as the mode?

[21 years; no]

2 Briefly describe the advantage and disadvantage of the mode, the median and the mean as measures of location.

(UK *University of Essex,* First Year Examination, 2002)

3 Nine nonnegative numbers have average 10. What is the greatest possible value for their median?

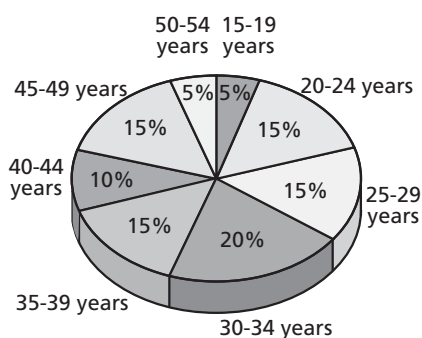(USA *Harvard-MIT Mathematics Tournament* (*HMMT*), 2002)

[18]

4 The time taken for a group of students to complete an examination question is given in the following table:

TIME (min)	10	12	14	16	18	20	22	24	26	28	30
FREQUENCY	1	3	3	4	5	6	5	4	4	3	2

a) How many students are in the group?
b) Calculate mean, mode, median and range.

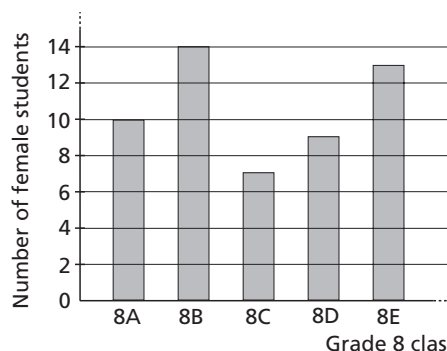[a) 40; b) mean: 20,4 min, mode: 20 min, median: 20 min, range: 20 min]

5 The diagram below represents the age distribution of a group of 200 daily readers. What is the mean age of a reader in the group?

[34]

6 **TEST** The graph shows the number of female students in five Grade 8 classes labeled 8A through 8E. The average (mean) number of female students in the five classes is:

[A] 10.0 [B] 10.7 [C] 10.4 [D] 10.3 [E] 10.6

(CAN *Canadian Mathematics Competition*, *Gauss Contest*, 2003)

7 You are given 6 positive integers, the largest of which is 6. The median is 3.5. What is the smallest possible value for the mean of these numbers?

(USA *Bay Area Math Meet, Bowl Sampler*, 1995)

$$\left[\frac{19}{6} \simeq 3,17\right]$$

8 The following are the speeds of slap-shots in km/hr for 26 *NHL* players as recorded during the Super-skills competition of the All Star Game 2000.

110, 170, 160, 152, 152, 124, 137, 134, 168, 143, 155, 166, 165,

150, 150, 150, 171, 163, 150, 152, 147, 140, 146, 157, 162, 163.

a) Find the median.
b) Find the mean and standard deviation.

(CAN *John Abbott College, Final Exam*, 2001)

[a) 152; b) 151,42; 14,05]

9 **TEST** George wrote seven tests and each was marked out of 100. No two of his marks were the same. He recorded the seven marks to do a statistical analysis. He accidentally recorded his highest mark higher than it actually was. How many of the following are altered because of his mistake?
Mean; median; minimum test score; range.

A 0
B 1
C 2
D 3
E 4

(CAN *Canadian Mathematics Competition, Gauss Contest*, 2003)

GLOSSARY

age: età	**mean**: media	**player**: giocatore
average: media	**measures of location**: indice	**range**: intervallo di
daily reader: lettore	di posizione	variabilità
di quotidiano	**median**: mediana	**slap-shot**: tiro a «schiaffo»
female: femmina	**minimum test score**:	(sport)
graph: grafico, diagramma	punteggio minimo del test	**speed**: velocità
to label: etichettare	**mistake**: errore	**standard deviation**:
to mark: assegnare un voto	**mode**: moda	deviazione standard