**unit 1 practice test Solutions included on the last pages**

**Multiple Choice**

*Identify the choice that best completes the statement or answers the question.*

\_\_\_\_ 1. A class interval refers to

|  |  |
| --- | --- |
| a. | a division used for grouping a set of observations |
| b. | the range of ages among a group of students |
| c. | the number of categories within a group of data |
| d. | the spread of values within an individual category |

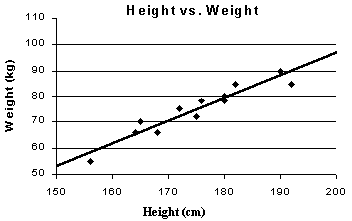
\_\_\_\_ 2. The amount of time spent studying for a math test and the mark achieved would most likely exhibit

|  |  |  |  |
| --- | --- | --- | --- |
| a. | a positive correlation | c. | no correlation |
| b. | a negative correlation | d. | a dependent trend |

\_\_\_\_ 3. What type of correlation would exist between the number of hotdogs that a vendor sells and the price charged per hotdog?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | positive correlation | c. | no correlation |
| b. | negative correlation | d. | quadratic correlation |

\_\_\_\_ 4. For the regression line shown, the coefficient of determination would be closest to



|  |  |  |  |
| --- | --- | --- | --- |
| a. | 1 | c. | 1 |
| b. | 0 | d. | 0.25 |

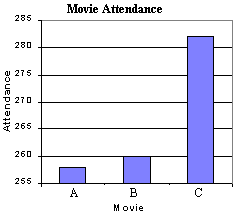
\_\_\_\_ 5. A set of data having small residual values means that

|  |  |
| --- | --- |
| a. | the correlation coefficient is close to 0 |
| b. | there is a positive correlation |
| c. | there is a negative correlation |
| d. | there is a strong correlation |

\_\_\_\_ 6. If the vertical scale on a bar graph is changed, incorrect conclusions may be drawn because

|  |  |
| --- | --- |
| a. | the heights of the bars are not proportional to the frequencies |
| b. | the frequencies may seem smaller or larger than what they really are |
| c. | the differences between frequencies may seem larger |
| d. | all of the above |

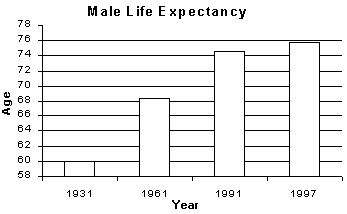
\_\_\_\_ 7. The following graph shows the theatre attendance for three different movies on a particular night.



Which of the following conclusions can be reached from the graph?

|  |  |
| --- | --- |
| a. | far more people saw movie C than the others |
| b. | movie C was the most popular movie in the theatre |
| c. | slightly more people saw movie C than movies A or B |
| d. | more people saw movie C than movies A and B combined |

\_\_\_\_ 8. Based on the following graph, which of the statements is false?



|  |  |
| --- | --- |
| a. | the life expectancy of men is increasing |
| b. | the rate at which the life expectancy is increasing is getting smaller |
| c. | the life expectancy has increased by over 15 years since 1931 |
| d. | the height of each bar is proportional to the life expectancy |

**Short Answer**

9. Tom measured the heights, in centimetres, of 30 corn plants and created the following stem-and-leaf plot.

|  |  |
| --- | --- |
| **Stem** | **Leaf** |
| 15 | 2 2 4 5 |
| 16 | 1 1 3 4 7 8 |
| 17 | 0 1 1 2 3 5 6 8 8 9 |
| 18 | 1 2 2 6 8 |
| 19 | 4 5 8 |
| 20 | 2 3 |

a) Determine the median of the heights.

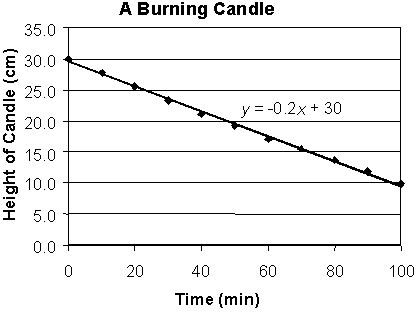
b) What percentage of plants are under 160cm?

10. The quiz marks for a class of students were as follows:

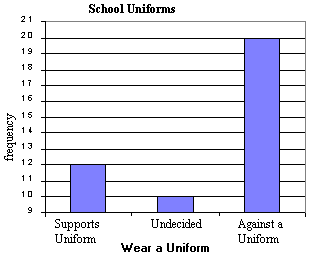
13, 17, 12, 18, 14, 15, 20, 8, 11, 18, 16, 11, 15, 13, 8, 19, 15, 13, 10, 11, 18, 17, 13

Determine the median of these marks.

11. Using the given equation for the regression line shown, determine the amount of time required to completely burn the candle.



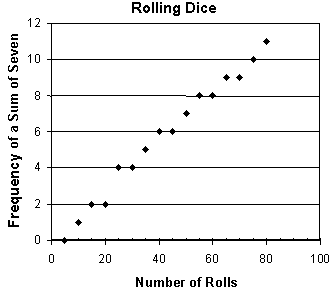
12. A school is considering requiring students to wear school uniforms. A student takes a survey in the school and produces the following graph.



Explain how the results of the survey are misrepresented in this graph.

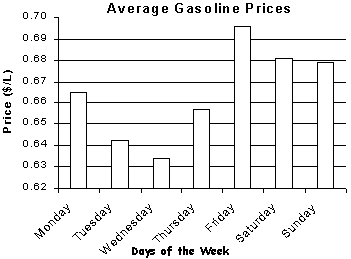
**Problem**

13. A pair of dice is rolled several times. The following scatter plot shows the number of rolls versus the number of times a sum of seven occurred.



Estimate the number of times a sum of seven would occur in 1000 rolls of the dice.

14. The following graph illustrates the average price for gasoline each day of the week.



a) Explain how certain characteristics of the graph support the claim “Gas Prices Hiked For the Weekend.”

b) How might the graph be changed to lessen the appearance of the price increase?

15. A coffee vendor records the temperature each day and the number of sales. Create a scatter plot to display these data.

|  |  |
| --- | --- |
| **Temperature (C)** | **Number of Sales** |
| 20 | 14 |
| 21 | 16 |
| 25 | 11 |
| 17 | 17 |
| 22 | 16 |
| 30 | 10 |
| 30 | 10 |
| 23 | 14 |
| 27 | 11 |
| 21 | 15 |
| 17 | 15 |
| 22 | 16 |
| 28 | 13 |
| 28 | 15 |

**unit 1 practice test**

**Answer Section**

**MULTIPLE CHOICE**

1. ANS: A PTS: 1 REF: Knowledge and Understanding

OBJ: 1.1 Visual Displays of Data STA: DMV.01 TOP: The Power of Information

2. ANS: A PTS: 1 REF: Knowledge and Understanding

OBJ: 1.3 The Power of Visualizing Data STA: ST4.03 TOP: The Power of Information

3. ANS: B PTS: 1 REF: Knowledge and Understanding

OBJ: 1.3 The Power of Visualizing Data STA: ST4.03 TOP: The Power of Information

4. ANS: A PTS: 1 REF: Knowledge and Understanding

OBJ: 1.4 Trends Using Technology STA: ST4.03 TOP: The Power of Information

5. ANS: D PTS: 1 REF: Knowledge and Understanding

OBJ: 1.4 Trends Using Technology STA: ST4.01 TOP: The Power of Information

6. ANS: D PTS: 1 REF: Knowledge and Understanding

OBJ: 1.5 The Power of Data - Media STA: ST5.01 TOP: The Power of Information

7. ANS: C PTS: 1 REF: Knowledge and Understanding

OBJ: 1.5 The Power of Data - Media STA: ST5.01 TOP: The Power of Information

8. ANS: D PTS: 1 REF: Knowledge and Understanding

OBJ: 1.5 The Power of Data - Media STA: ST5.01 TOP: The Power of Information

**SHORT ANSWER**

9. ANS:

Since there are 30 data values, the median will be the average of the 15th and 16th data values.

Median =  =  = 174

Therefore, the median height is 174 cm.

PTS: 1 REF: Knowledge and Understanding OBJ: 1.1 Visual Displays of Data

STA: DMV.01 TOP: The Power of Information

10. ANS:

The marks need to be sorted as shown:

8, 8, 10, 11, 11, 11, 12, 13, 13, 13, 13, **14**, 15, 15, 15, 16, 17, 17, 18, 18, 18, 19, 20

Since there are 23 marks, the median will be the 12th mark, which is 14.

PTS: 1 REF: Knowledge and Understanding OBJ: 1.1 Visual Displays of Data

STA: DMV.01 TOP: The Power of Information

11. ANS:

It will take 150 min to completely burn the candle.

PTS: 1 REF: Application OBJ: 1.4 Trends Using Technology

STA: STV.04 TOP: The Power of Information

12. ANS:

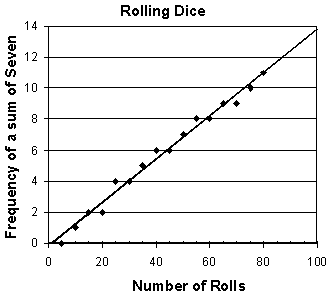
It appears that the vast majority of students are against a uniform when just 8 more students are against the uniform than support it. This occurs because of the small range of values on the vertical scale.

PTS: 1 REF: Communication OBJ: 1.5 The Power of Data - Media

STA: ST5.01 TOP: The Power of Information

**PROBLEM**

13. ANS:



Based on the line of best fit, we see that a sum of seven occurs approximately 14 times in every 100 rolls. Therefore, in 1000 rolls, we would expect a sum of seven to occur 140 times.

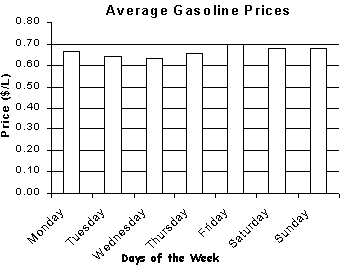
PTS: 1 REF: Thinking/Inquiry/PS OBJ: 1.3 The Power of Visualizing Data

STA: ST4.03 TOP: The Power of Information

14. ANS:

a) Because the bars are not proportional to the price of the gas, the prices on Friday, Saturday, and Sunday seem much higher.

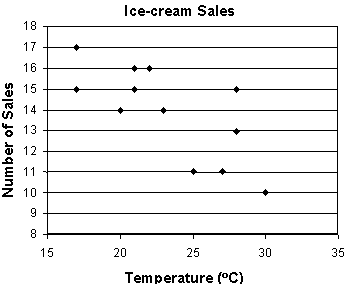
b) The daily prices would seem much more equal if the vertical scale started at zero:



PTS: 1 REF: Communication OBJ: Chapter 1 Prob

STA: ST5.01 TOP: The Power of Information

15. ANS:



PTS: 1 REF: Knowledge and Understanding OBJ: 1.3 The Power of Visualizing Data

STA: ST4.03 TOP: The Power of Information