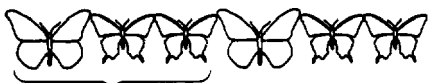


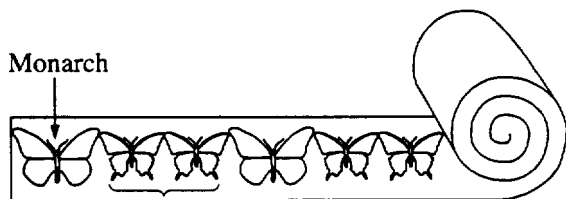
NAEP Mathematics Samples

- 1) Your class has decided to have a banner that will be 130 centimeters long. This banner will have a repeating pattern of one Monarch butterfly followed by two Black Swallowtail butterflies, as shown here.



This part keeps repeating across the banner.

"The butterflies will just touch but will not overlap."



How many of each type of butterfly are needed for the banner?

Monarch _____

Black Swallowtail _____

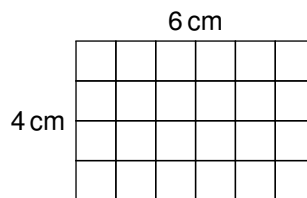
Show how you got your answers.

- 2) ☆△△△☆ △□□△ □○_○□ ○☆☆☆○

In the pattern shown above, which of the following would go into the blank space?

- A. ○ B. □ C. ○ D. △

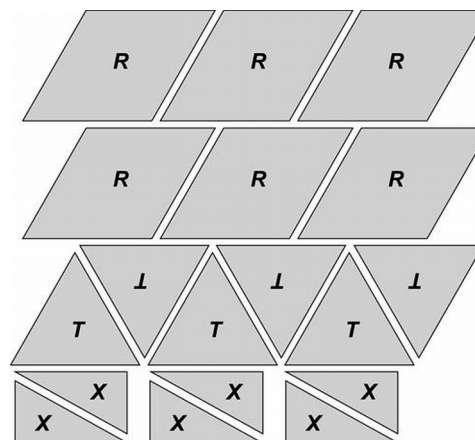
- 3) What is the area of this rectangle?



- A. 4 square cm B. 6 square cm
C. 10 square cm D. 24 square cm
E. I don't know.

- 4) The following question(s) refer to additional materials [1]

Additional materials [1]



The following question refers to pieces R, T and X.

You will need two pieces labeled X to answer this question.

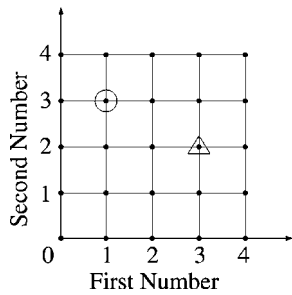
Use the pieces to make a shape that has these properties.

- It has four sides.
- No pieces overlap.
- No two sides are parallel.

In the space below, trace the shape.

Draw the line to show where the two pieces meet.

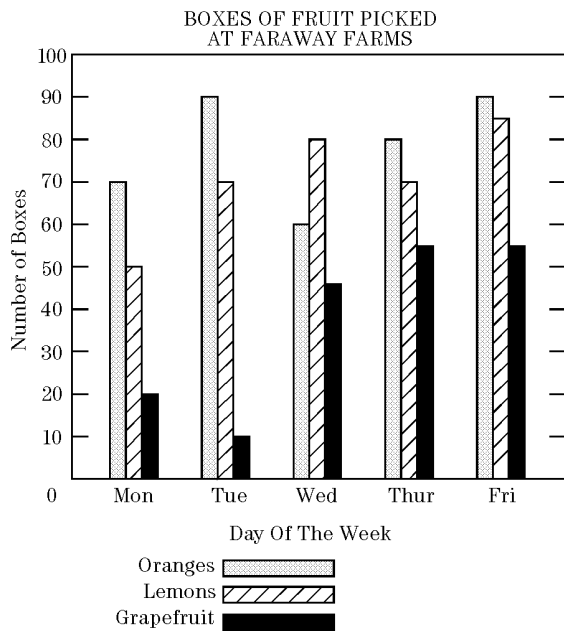
- 5) On this grid, find the dot with the circle around it. We can describe where this dot is by saying it is at First Number 1, Second Number 3



Now find the dot with the triangle around it. Describe where the dot is on the grid in the same way. Fill the numbers we would use:

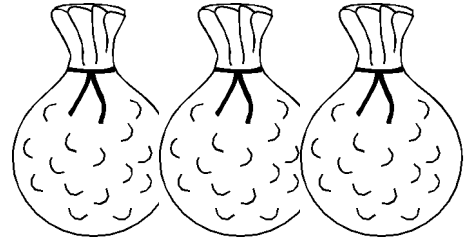
First number _____ Second number _____

- 6) How many boxes of oranges were picked on Thursday?



- A. 55 B. 70 C. 80 D. 90
E. I don't know.

- 7) There is only one red marble in each of these bags.

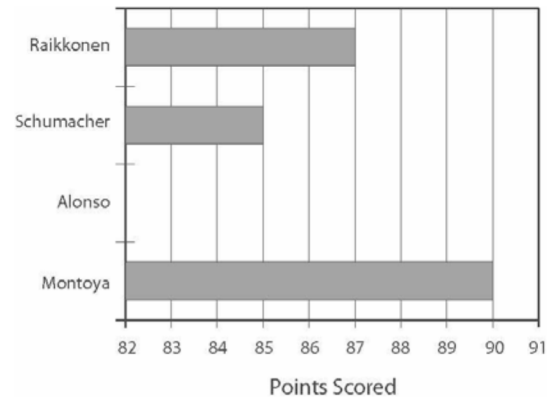


10 Marbles 100 Marbles 1000 Marbles

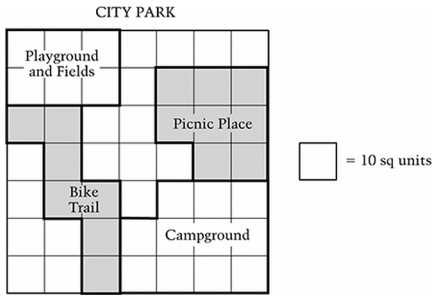
Without looking in the bags, you are to pick a marble out of one of the bags. Which bag would give you the greatest chance of picking the red marble?

- A. The bag with 10 marbles
B. The bag with 100 marbles
C. The bag with 1000 marbles
D. All bags would give the same chance.

- 8) This graph shows the points obtained by 4 drivers in the car racing championship, Montoya is in first place. Alonso is in third place. Draw a bar which shows how many points Alonso has scored.



9)



A map of City Park is shown above. The area of the whole park is 490 square units. The Bike Trail and the Picnic Place together occupy how many square units of the park's area?

- A. 70 B. 80 C. 150 D. 220

10) If the value of the expression $x + 2$ is less than 12, which of the following could be a value of x ?

- A. 16 B. 14 C. 12 D. 10 E. 8

11) Which set of line segments CANNOT make a triangle?

- A. _____

- B. _____

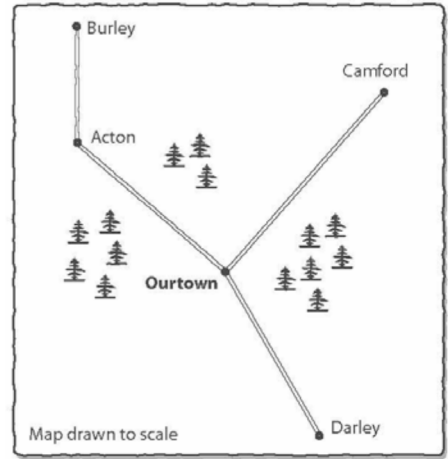
- C. _____

- D. _____

- E. I don't know.

12) Mike and Katy are planning a day trip for their class.

They plan to go from their school in Ourtown to one of the towns of Acton, Burley, Camford, or Darley



Since the teacher said they must return on the same day, the class cannot travel to a town that is more than 80 km from Ourtown. Given that it is 80 km from Ourtown to Camford, use the map above to help you complete the table below by entering *yes* or *no* in the blank spaces.

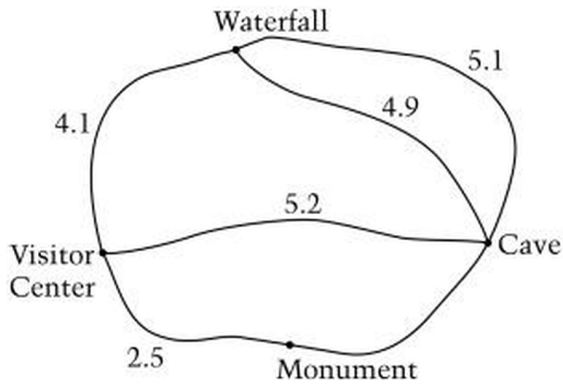
	Acton	Burley	Camford	Darley
Meets conditions of 80 km or less			Yes	

13) The sum of three numbers is 173. If the smallest number is 23, could the largest number be 62?

- Yes No

Explain your answer in the space below.

14)

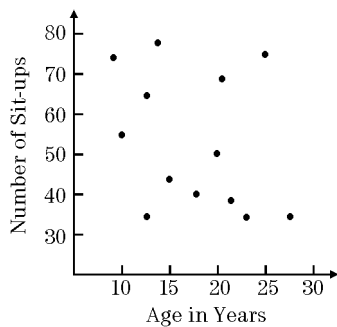


The map above gives the distances, in miles, between various locations in a state park. Traveling the shortest possible total distance along the paths shown on the map, from the visitor center Teresa visits the cave, waterfall, and monument, but not necessarily in that order, and then returns to the visitor center. If she does not retrace her steps along any path and the total distance that Teresa travels is 14.7 miles, what is the distance between the cave and the monument?

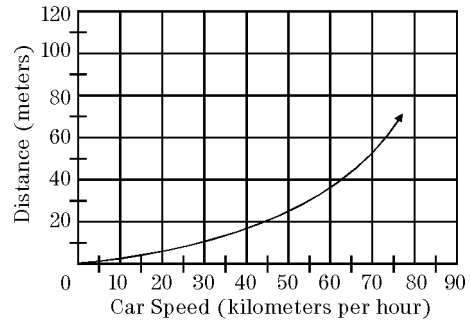
- A. 2.2 miles B. 2.5 miles C. 2.7 miles
- D. 3.0 miles E. 3.2 miles

15) In the graph shown, each dot shows the number of sit-ups and the corresponding age for one of 13 people. According to this graph, what is the median number of sit-ups for these 13 people?

- A. 15
- B. 20
- C. 45
- D. 50
- E. 55



16) The graph shows the distance traveled before coming to a stop after the brakes are applied for a typical car traveling at different speeds.



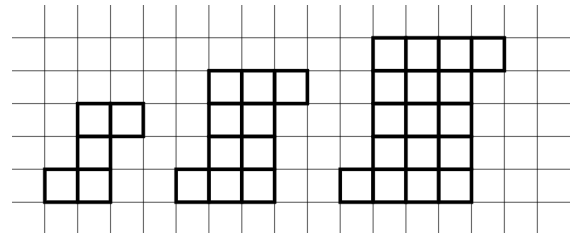
A car is traveling 80 km per hour. About how far will the car travel after the brakes are applied?

- A. 60 m B. 70 m
- C. 85 m D. 100 m

17) If $f(x) = \frac{2x + 1}{3}$ and $g(x) = 2x^2 + 2$, then $f(g(2)) =$

- A. 3 B. 5 C. 7
- D. $7\frac{5}{9}$ E. $16\frac{2}{3}$

18) The first 3 figures in a pattern of tiles are shown. The pattern of tiles contains 50 figures.



Describe the 20th figure in this pattern, including the total number of tiles it contains and how they are arranged. Then explain the reasoning that you used to determine this information. Write a description that could be used to define any figure in the pattern.

- 19) The population P of a certain town is given by the equation $P = 50,000(1 + r)^t$, where r is the annual rate of population increase and t is the number of years since 1990.

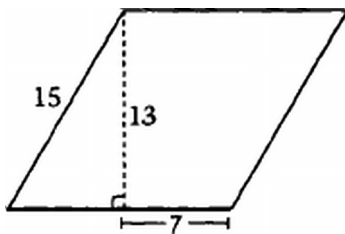
What was the population in 1990?

Answer: _____

In 2001 the population was 100,000. What was the annual rate of population increase?

Answer: _____

20)



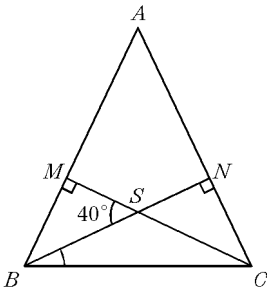
To the nearest whole number, what is the area of the parallelogram above?

Answer: _____

- 21) In the $\triangle ABC$ the altitudes \overline{BN} and \overline{CM} intersect at point S . The measure of $\angle MSB$ is 40° and the measure of $\angle SBC$ is 20° . Write a PROOF of the following statement:

“ $\triangle ABC$ is isosceles.”

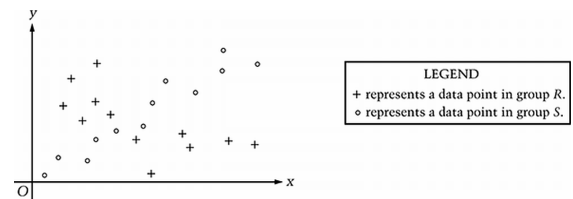
Give geometric reasons for statements in your proof.



- 22) The postal rate is 25 cents for the first ounce and 20 cents for each additional ounce or part of an ounce. What would it cost to mail a package that weighs 6.8 ounces?

- A. \$1.25 B. \$1.40 C. \$1.45
D. \$1.70 E. \$1.75

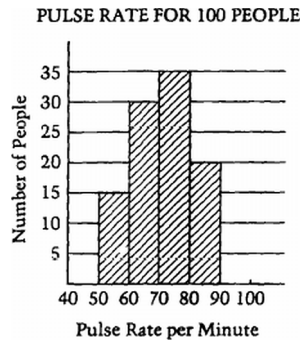
23)



The scatterplot above shows data for groups R and S . Which of the following statements is true about the correlation between the x and y values of group R and the correlation between the x and y values of group S ?

- A. The x and y values appear to be negatively correlated in both R and S .
B. The x and y values appear to be positively correlated in both R and S .
C. The x and y values appear to be negatively correlated in R , but positively correlated in S .
D. The x and y values appear to be positively correlated in R , but negatively correlated in S .
E. The x and y values appear to be more highly correlated in R than in S

24)



The pulse rate for a group of 100 people is shown in the graph above. What is the average pulse rate per minute for these 100 people? (Note: Use the midpoint of each interval to represent the pulse rate for the entire interval. For example, 55 would be used for the pulse rate of the 15 people in the 50–60 group.)

Answer: _____

25) GENDER AND COLOR OF PUPPIES

	Male	Female
Black	1	2
Brown	1	3

The table above shows the gender and color of 7 puppies. If a puppy selected at random from the group is brown, what is the probability it is a male?

- A. $\frac{1}{4}$ B. $\frac{2}{7}$ C. $\frac{1}{3}$ D. $\frac{1}{2}$ E. $\frac{2}{3}$