Arizona's Instrument to Measure Standards (AIMS HS)
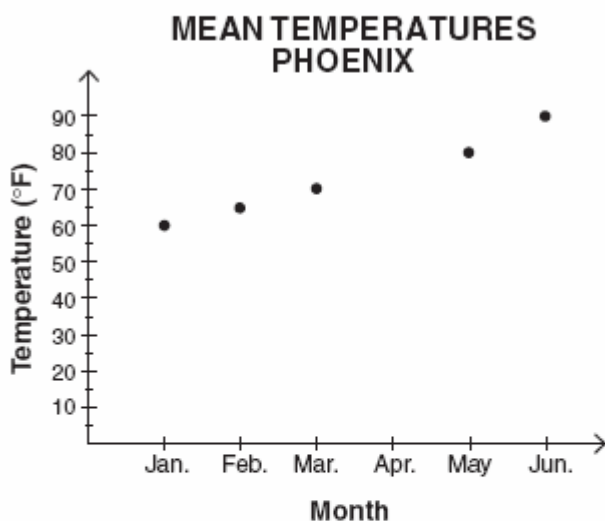
Mathematics

Released Items

November 15, 2006

Mathematics ────────────────────────────────

DIRECTIONS: Read each question and choose the best answer.

1.
The graph below shows some monthly mean temperatures for Phoenix.

MEAN TEMPERATURES PHOENIX

Which of these is the most likely mean temperature for the month of April in Phoenix?

A 80°F

B 75°F

C 60°F

D 55°F

2.
Which equation represents "*the sum of three x and four y equals ten*"?

A $3x + 4y = 10$

B $3 + x + 4 + y = 10$

C $7xy = 10$

D $3(x + 4y) = 10$

3. The figure below represents the top view of an area taken up by a fountain at a shopping mall. The figure consists of a rectangle with a semi circle at its end as shown.

Which is closest to the total area taken up by the fountain?

A   257 sq ft

B   757 sq ft

C   914 sq ft

D   1228 sq ft

4. John has 3 different flags to fly on his flagpole: red (R), yellow (Y), and blue (B). If all 3 flags are to be flown together, what is the outcome set of how they can be displayed?

A   {R, Y, B}

B   {RY, RB, YB}

C   {RYB, BRY, YBR}

D   {RYB, RBY, BRY, BYR, YRB, YBR}

5. Four students each used a different method to find the area of the rectangle below.

Which of the following students used an INCORRECT method to find the area?

A Student 1 counted the number of unit squares.

B Student 2 used $l \cdot w$.

C Student 3 multiplied the number of rows times the number of columns.

D Student 4 used $2l \cdot 2w$.

**6.** Which of the following real-world situations could best be modeled by the graph below?

A the altitude of a plane during a trip, from take-off to landing

B the temperature of a pizza after it has been taken out of an oven

C the height of a person growing from child to adult

D the amount of gasoline in a car gas tank during a trip

7. Which of the following equations of a line has an x-intercept at 4 and a y-intercept at -2?

    A $2x - y = 8$

    B $2x - y = 4$

    C $x - 2y = 4$

    D $2x - y = 10$

8. Which of the following best represents the graph of the inequality $y < \frac{1}{2}x + 3$?

A

C

B

D
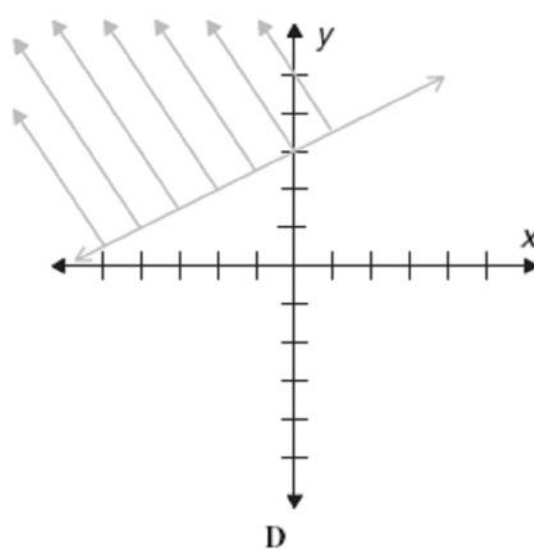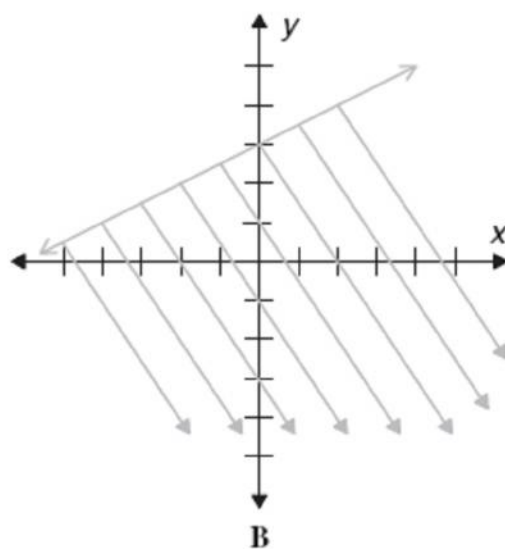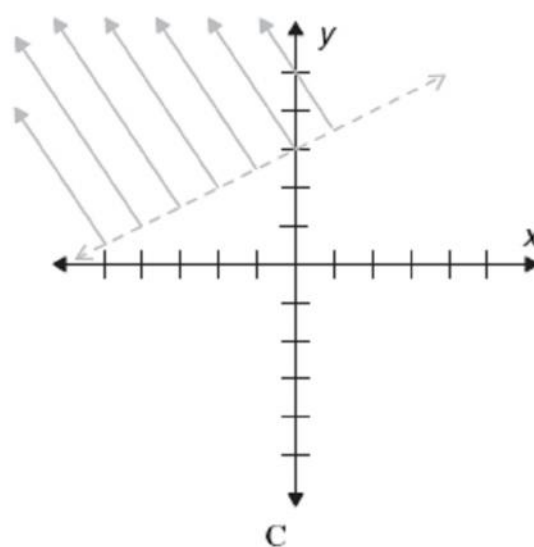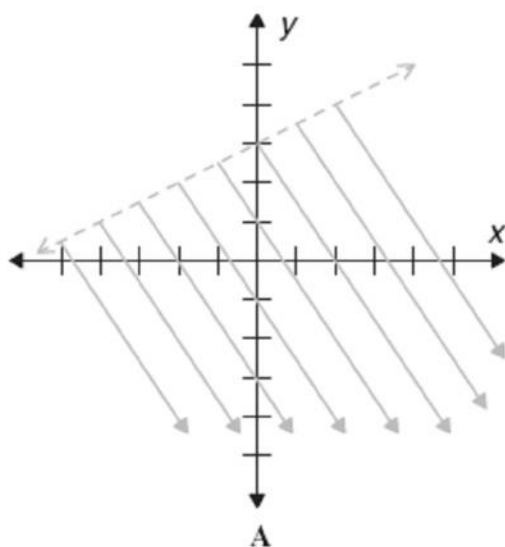
9. The following table represents C, an appliance repairman's charges based on t, the hours it takes to make a repair.

APPLIANCE REPAIR TOTAL CHARGES

| t (hours)	C (dollars)
1	75
3	145
5	215
7	285

Which of the following equations could be used to determine the repairman's charges for a repair?

A $C = 35t + 40$

B $C = 40t + 35$

C $C = 75t$

D $C = 45t$

10. Which set of numbers is finite?

A {even numbers between 1 and 89}

B {real numbers greater than 1}

C {rational numbers between 1 and 2}
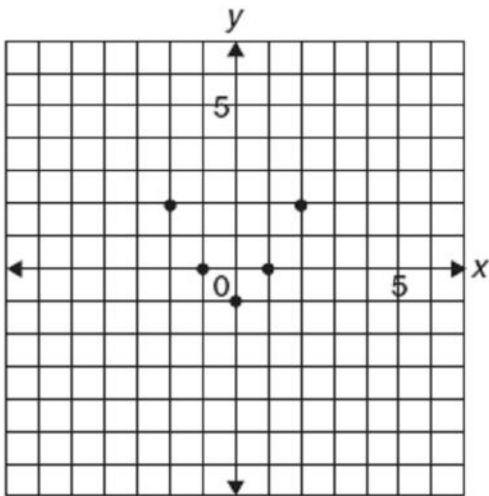
D {whole numbers with tens digits at zero}

11. Which of the following functions of x has an apparent range of $\{-1, 0, 2\}$?
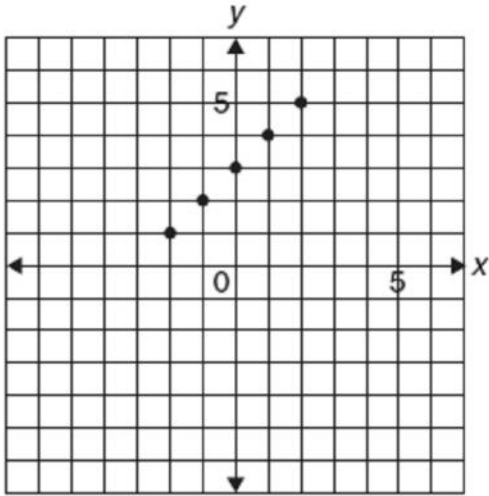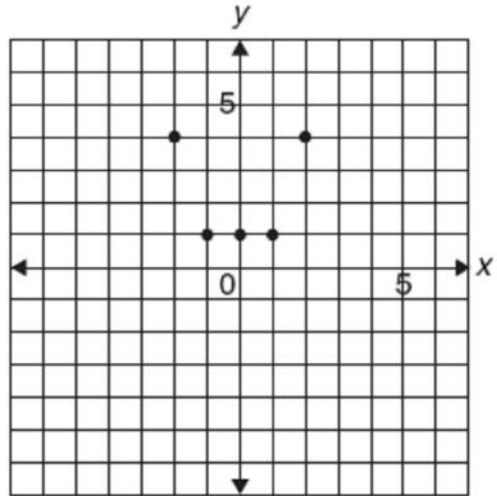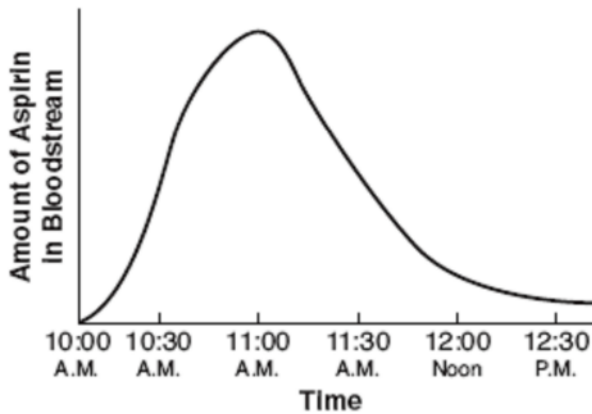

A
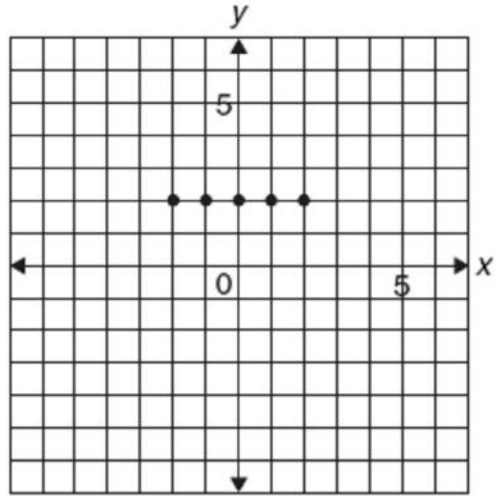
C

B

D

12. Chris took an aspirin at 10:00 A.M. The graph shows the concentration of aspirin in his bloodstream over time.

What appears to be the time the concentration was highest?

A   10:00 A.M.

B   11:00 A.M.

C   11:30 A.M.

D   12:30 A.M.

13. The set of real numbers shown below is a subset of which of the following?

$$\{\sqrt{8}, \pi\}$$

A   rationals

B   irrationals

C   integers

D   whole numbers

14. Which object is represented by the following net?

A

B

C

D