

**Mathematics Attitudes, Skills, & Knowledge Survey  
(MASKS)  
Level 1 Form A**

Directions to Students:

Do not open this booklet until you are told to do so. Please respond to the following items by marking the best answer on your answer sheet using a #2 pencil. Please do not write on this survey. Scratch paper will be provided on request. If you do not understand what is being asked in an item, please ask the survey administrator for clarification.

Calculators are not permitted on this exam.

***Please Do Not Write On This Test Booklet***



Arizona Collaborative for Excellence in the Preparation of Teachers  
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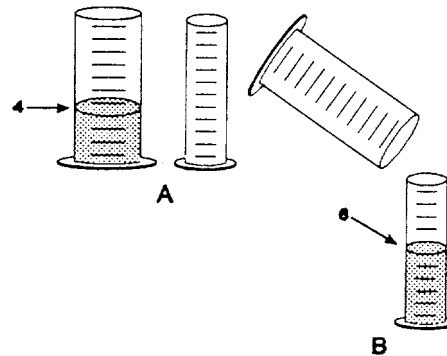
1. Which best describes your race or ethnic background?
  - A. American Indian
  - B. Asian/Pacific Islander
  - C. Hispanic
  - D. Black
  - E. Other
  
2. What is the highest level of education your mother obtained?
  - A. did not finish high school
  - B. high school graduate
  - C. some education after high school
  - D. college graduate
  - E. I don't know
  
3. What is the highest level of education your father obtained?
  - A. did not finish high school
  - B. high school graduate
  - C. some education after high school
  - D. college graduate
  - E. I don't know

Use the following key to indicate whether you agree/disagree with items 4 – 10.

A. strongly agree    B. agree    C. not sure    D. disagree    E. strongly disagree

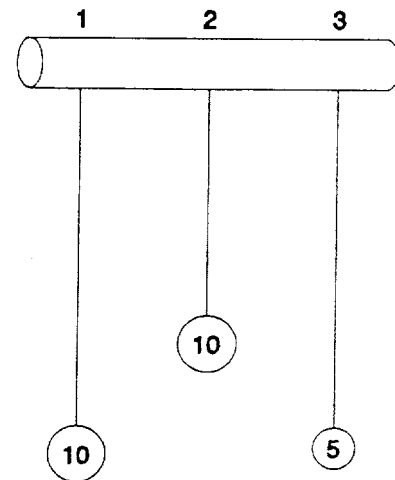
4. I like math.
  
5. Being successful in math requires only being good with numbers.
  
6. There can be more than one way to solve a math problem.
  
7. Solving a difficult math problem does not involve being creative.
  
8. Formulas represent relationships between variables.
  
9. Math rules must be taken by faith.
  
10. Graphing real world data is useful for making predictions.

11. To the right are drawings of a wide and a narrow cylinder. The cylinders have equally spaced marks on them. Water is poured into the wide cylinder up to the 4th mark (see A). This water rises to the 6th mark when poured into the narrow cylinder (see B).



Both cylinders are emptied, and water is poured into the narrow cylinder up to the 11th mark. How high would this water rise if it were poured into the empty wide cylinder?

- A. to about  $7 \frac{1}{2}$   
 B. to about 9  
 C. to about 8  
 D. to about  $7 \frac{1}{3}$   
 E. none of these answers is correct
12. because
- A. the ratios must stay the same.  
 B. one must actually pour the water and observe to find out.  
 C. the answer can not be determined with the information given.  
 D. it was 2 less before so it will be 2 less again.  
 E. you subtract 2 from the wide for every 3 from the narrow.
13. At the right are drawings of three strings hanging from a bar. The three strings have metal weights attached to their ends. String 1 and String 3 are the same length. String 2 is shorter. A 10 unit weight is attached to the end of String 1. A 10 unit weight is also attached to the end of String 2. A 5 unit weight is attached to the end of String 3. The strings (and attached weights) can be swung back and forth and the time it takes to make a swing can be timed.



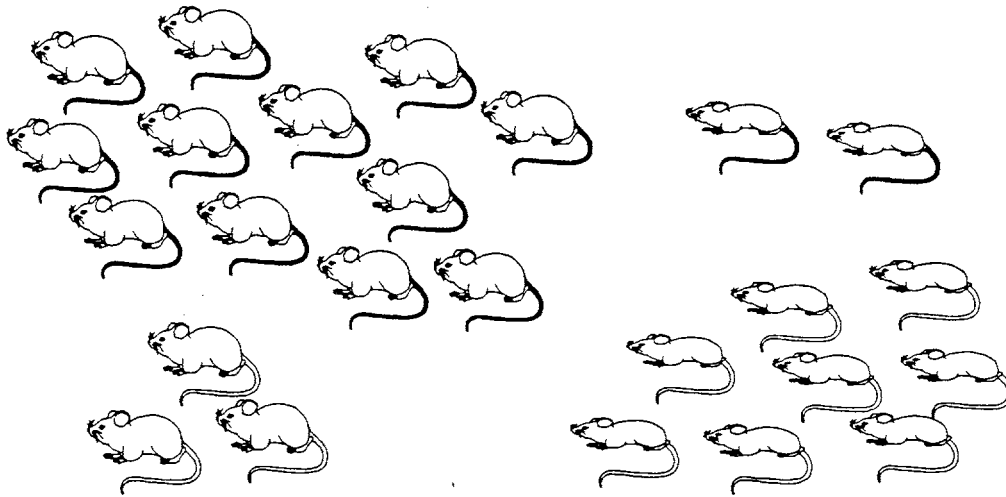
Suppose you want to find out whether the length of the string has an effect on the time it takes to swing back and forth. Which strings would you use to find out?

- A. only one string  
 B. all three strings  
 C. 2 and 3  
 D. 1 and 3  
 E. 1 and 2

14. because

- A. you must use the longest strings.
- B. you must compare strings with both light and heavy weights.
- C. only the lengths differ.
- D. to make all possible comparisons.
- E. the weights differ.

15. Farmer Brown was observing the mice that live in his field. He discovered that all of them were either fat or thin. Also, all of them had either black tails or white tails. This made him wonder if there might be a link between the size of the mice and the color of their tails. So he captured all of the mice in one part of his field and observed them. Below are the mice that he captured.



Do you think there is a link between the size of the mice and the color of their tails?

- A. appears to be a link
- B. appears not to be a link
- C. can not make a reasonable guess

16. because

- A. there are some of each kind of mouse.
- B. there may be a genetic link between mouse size and tail color.
- C. there were not enough mice captured.
- D. most of the fat mice have black tails while most of the thin mice have white tails.
- E. as the mice grew fatter, their tails became darker.

17. The table below shows the times and distances that a 2000 Corvette covered during the first 4 seconds after a stoplight.

Time (t) in seconds	Distance (d) in feet
0	0
1	25
2	98
3	198
4	350

Find the average rate of change of the car from 1 to 3 seconds.

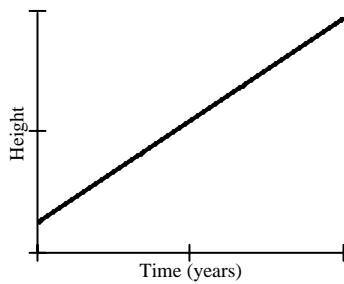
- A. 66 feet  
 B.  $66 \frac{\text{feet}}{\text{sec}}$   
 C. 86.5 feet  
 D.  $86.5 \frac{\text{feet}}{\text{sec}}$   
 E.  $198 \frac{\text{feet}}{\text{sec}}$
18. If  $x$  and  $y$  are integers, then the expression  $4x + 5y$  has a value that is odd or even depending on the values of  $x$  and  $y$ . For example, if  $x$  and  $y$  are each even,  $4x$  is even and  $5y$  is even. Therefore,  $4x + 5y$  is also even. Which of the options below would be the correct order to fill in each of the spaces in the following table with either "odd" or "even". (Item #7 NAEP, accession number IY002307, Gsection3)

Value of $x$	Value of $y$	Value of $4x + 5y$
even	even	even
even	odd	
odd	even	
odd	odd	

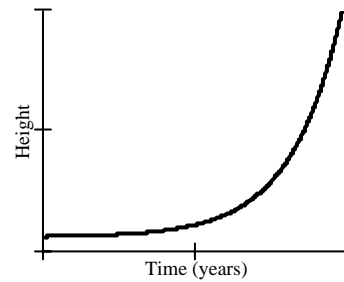
- A. even, even, even  
 B. odd, odd, odd  
 C. odd, even, even  
 D. odd, even, odd  
 E. even, odd, even
19. Luis mixed 6 ounces of cherry syrup with 53 ounces of water to make a cherry-flavored drink, Martin mixed 5 ounces of the same cherry syrup with 42 ounces of water. Who made the drink with the stronger cherry flavor and by how much? (like NAEP C section 4, accession number HW000862)
- A. Luis by 1 ounce  
 B. Luis by about 0.6%  
 C. Martin by 1 ounce  
 D. Martin by about 0.6%

20. Which of the following graphs best show the relationship between the height of a person and his/her age from birth to thirty years. (like TIMMS population 3 A 10)

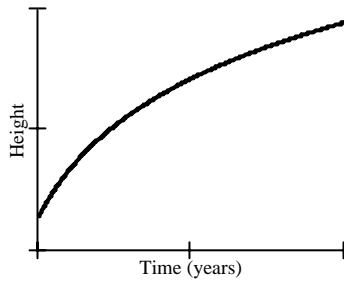
A.



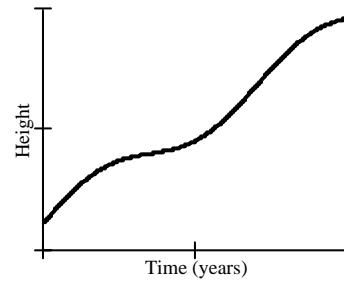
B.



C.



D.



21. A 45,000 liter water tank is to be filled at the rate of 220 liters per minute. Estimate to the nearest half an hour how long it will take to fill the tank. (TIMMS pop. 3 D6)

- A. 4 hours
- B. 3.5 hours
- C. 3 hours
- D. 2.5 hours

22. A straight line on a graph passes through the points (3,2) and (4,4). Which of these points also lies on the line? (TIMMS pop. 2 I8)

- A. (1,1)
- B. (2,4)
- C. (5,6)
- D. (6,3)
- E. (6,5)

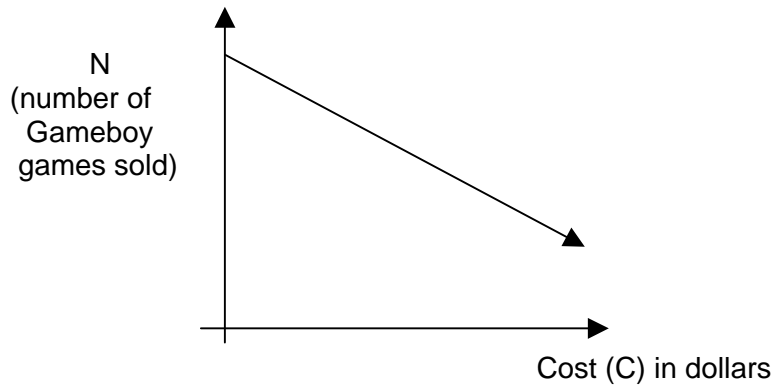
23. If the price of a can of beans is raised from 60 cents to 75 cents what is the percent increase in price?

- A. 15%
- B. 20%
- C. 25%
- D. 30%

24. If  $3(x + 5) = 30$  then  $x =$  (TIMMS pop. 2 O7)

- A. 2
- B. 5
- C. 10
- D. 95

25. What does the slope of the line represent in this problem if C is the cost in dollars and N is the number of Gameboy handheld games sold?



- A. Cost (in dollars)
- B. Number of Gameboy games sold
- C. Decreased cost (in dollars) per number of Gameboy games sold
- D. Number of Gameboy games sold per dollar increase