

Answer key
attached.

SAMPLE
TEST

61

JOINT APPRENTICESHIP

&

TRAINING COMMITTEE

(A JOINT COMMITTEE OF THE MCAH & U.A. LOCAL 67)

MECHANICAL APTITUDE TEST

****DO NOT OPEN BOOKLET UNTIL TOLD TO DO SO****

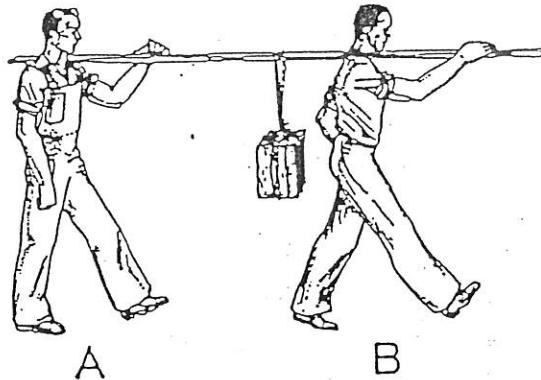
*****YOU HAVE 60 MINUTES TO COMPLETE THIS TEST*****

JOINT TRAINING & APPRENTICESHIP COMMITTEE
TEST OF
MECHANICAL COMPREHENSION

DIRECTIONS

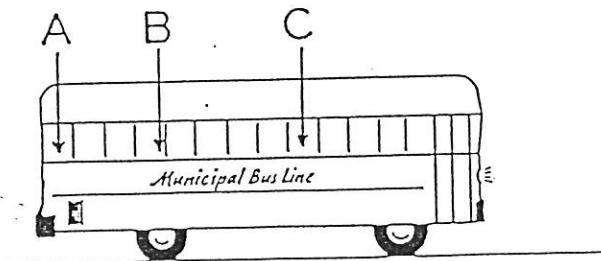
Fill in the requested information on your ANSWER SHEET.

On the following pages there are more pictures and questions. Read each question carefully, look at the picture, and fill in the square that best answers, on the Answer Sheet. Make sure that your marks are heavy and black. Erase completely any answer you wish to change. Be certain that you use the right column on the answer sheet for each page.



X

Which man carries more weight?
(If equal, mark C.)



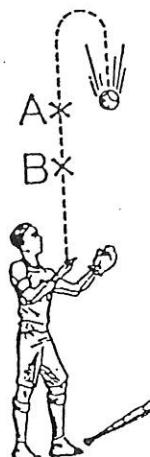
Y

Which letter shows the seat where
a passenger will get the smooth-
est ride?

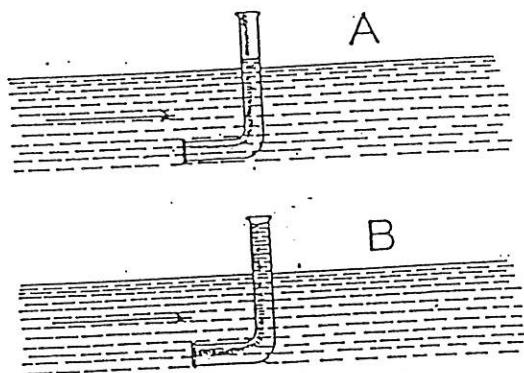
DO NOT MARK THIS BOOKLET - PUT YOUR ANSWERS ON THE ANSWER SHEET

PUT YOUR ANSWERS ON THE ANSWER SHEET

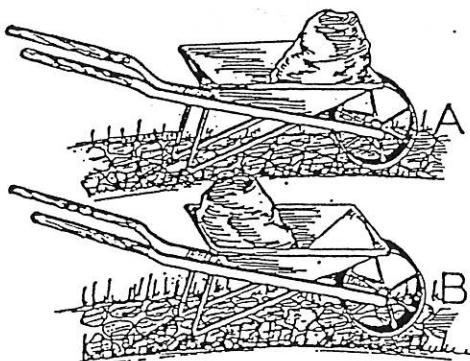
1. At which point is the ball going faster? (If equal, mark C)



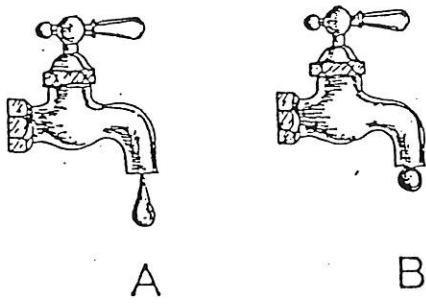
2. Which of these streams are flowing faster? (If equal, mark C)



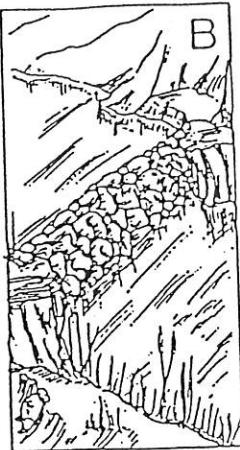
3. Which way will it be easier to carry the rock in the wheelbarrow? (If either, mark C)



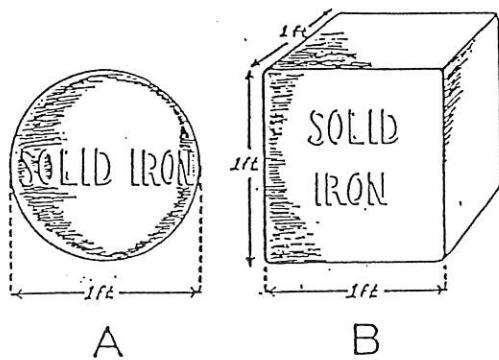
4. Which picture shows the way a drop of water looks just before it falls?



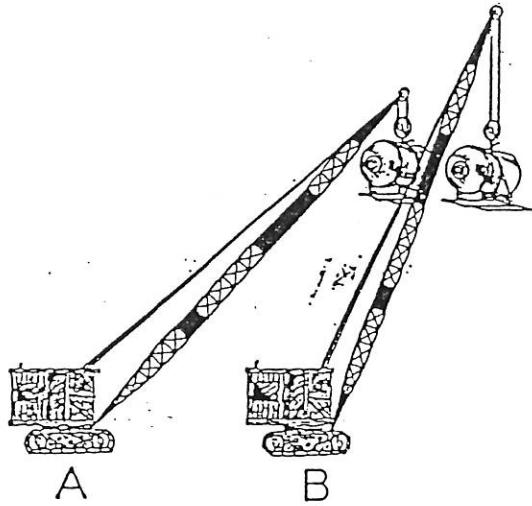
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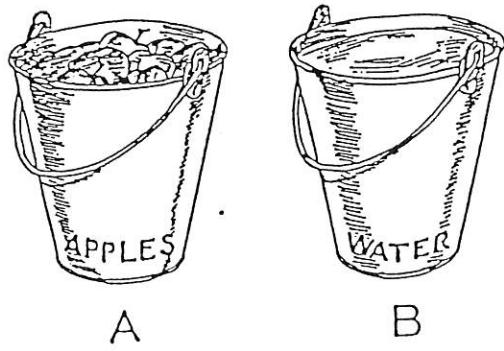
5. Which dam is stronger? (If equal, mark C)



6. Which weighs more? (If equal, mark C)



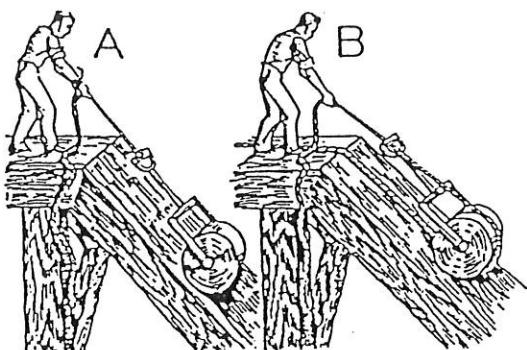
7. Which is more likely to tip over? (If either, mark C)



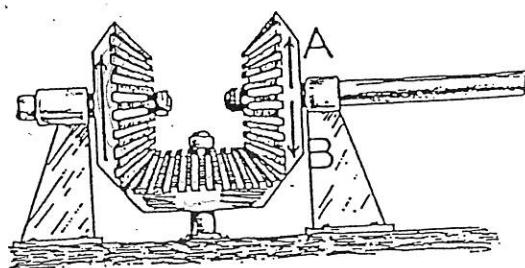
8. Which weighs more? (If equal, mark C)

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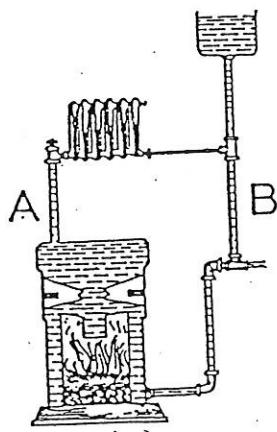
9. Which man has to pull harder to lift the roller? (If equal, mark C)



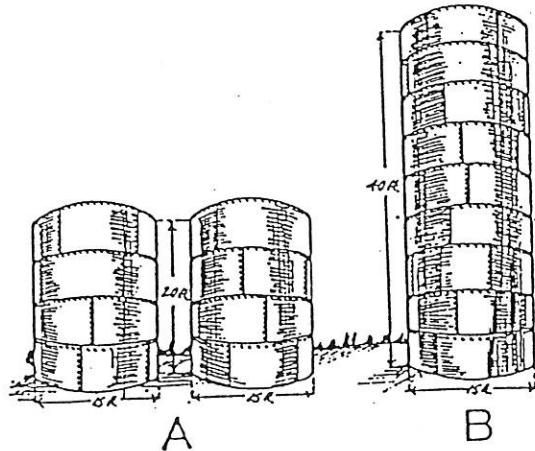
10. If the left-hand gear moves in the direction shown, in which direction will the right-hand gear move?



11. Which pipe contains the cooler water? (If equal, mark C)

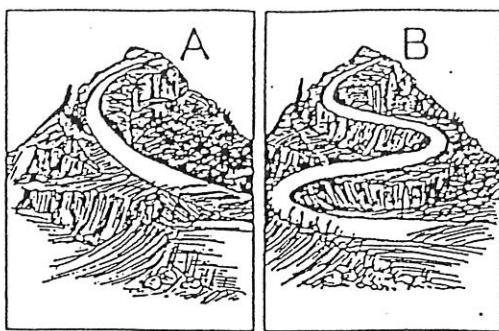


12. Which will hold more water, the two tanks at A or the one tank at B? (If equal, mark C)

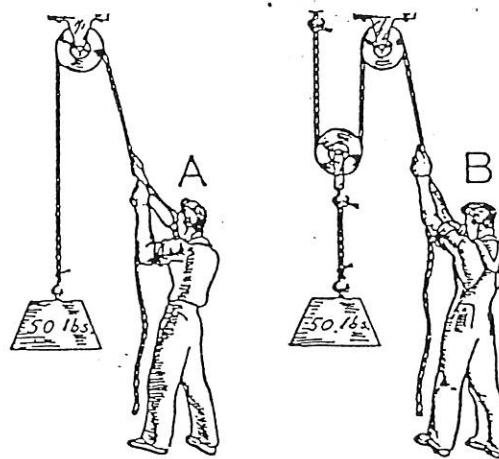
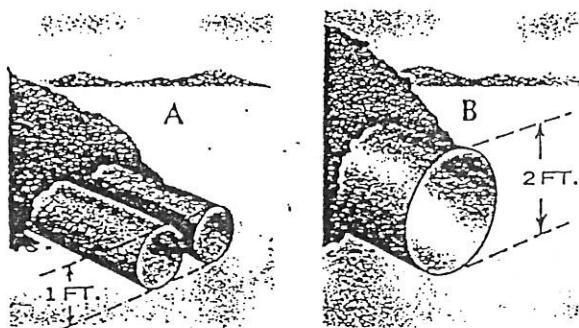


PUT YOUR ANSWERS ON THE ANSWER SHEET

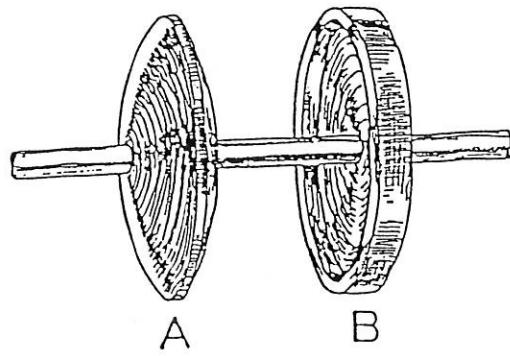
13. Which road is steeper? (If equal, mark C)



14. Which will carry more water, the two pipes in A or the one pipe in B? (If no difference, mark C)



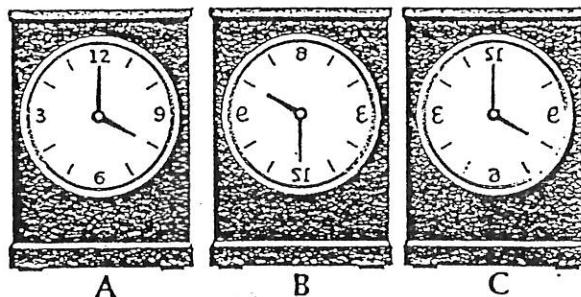
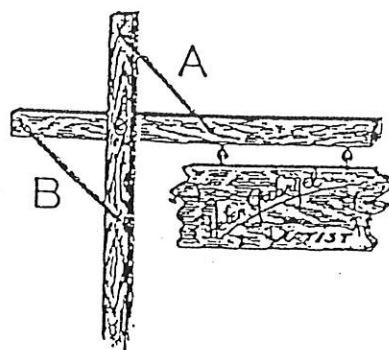
15. Which man has to pull more rope to raise the weight the same distance? (If equal, mark C)



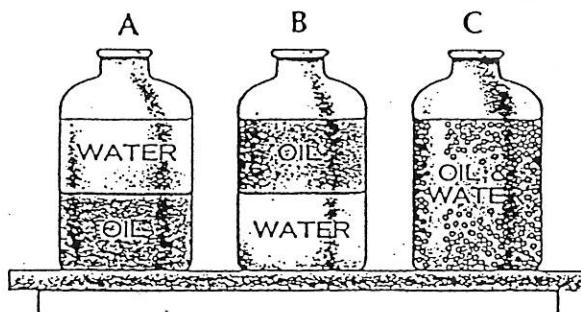
16. Which wheel is more likely to fly apart if it is spun at high speed? (If equal, mark C)

PUT YOUR ANSWERS ON THE ANSWER SHEET

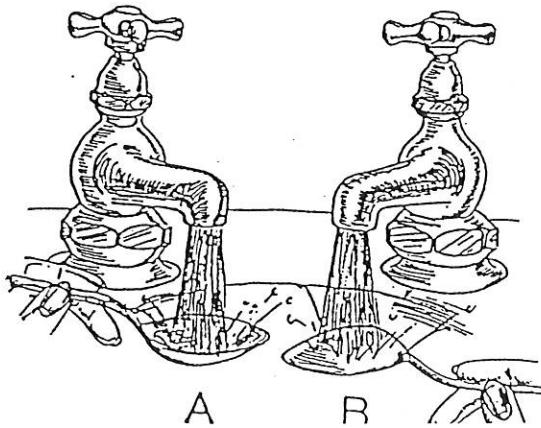
17. Which one piece of chain will hold up the sign? (If equal, mark C)



18. Which picture shows how a clock looks when seen in a mirror?



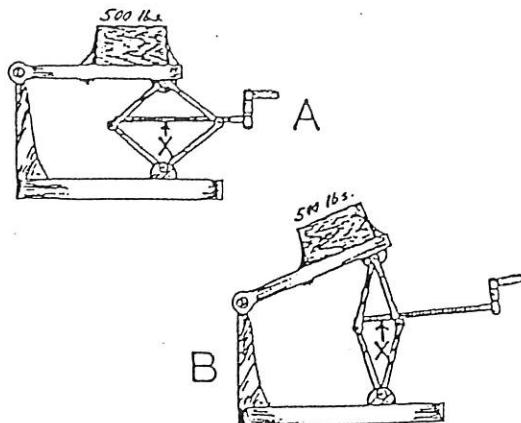
19. Which picture shows how oil and water would be after standing for a while?



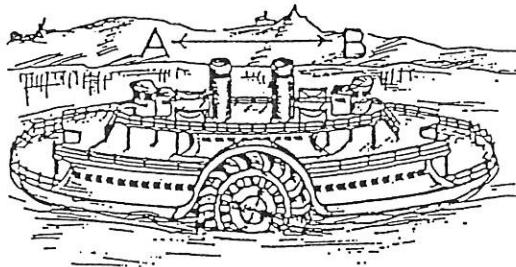
20. In which case will the water splash more? (If equal, mark C)

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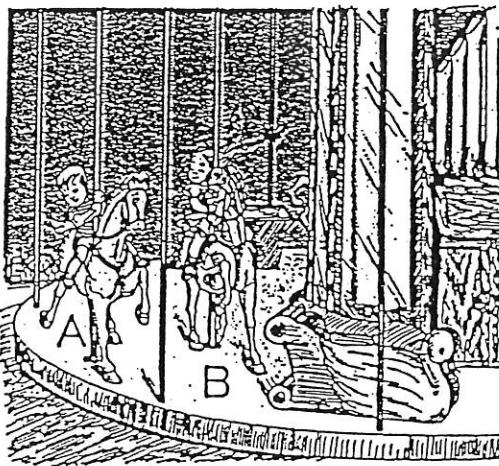
21. In which position is there more strain on "X"? (If equal, mark C)



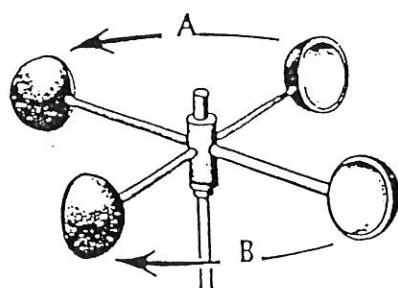
22. In which direction will the boat go faster? (If equal, mark C)



23. Which child will ride faster? (If equal, mark C)



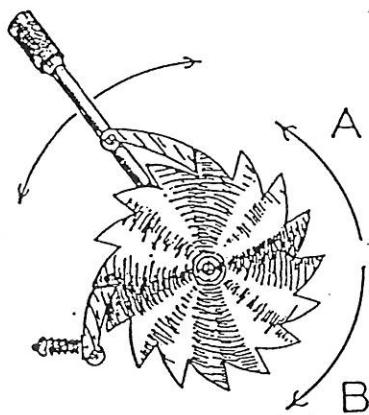
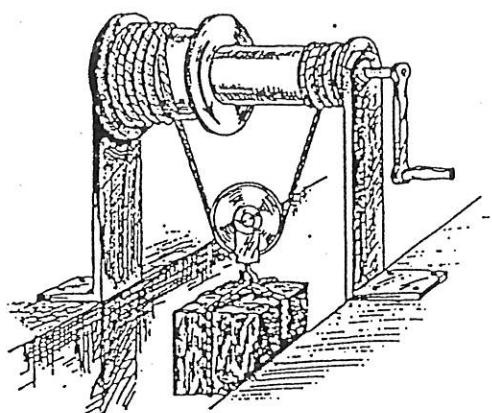
24. When the wind blows, in which direction will these cups turn? (If either, mark C)



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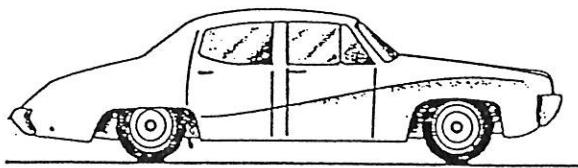
25. If the windlass is turned in the direction shown, the load will:

A, move up
B, move down
C, not move



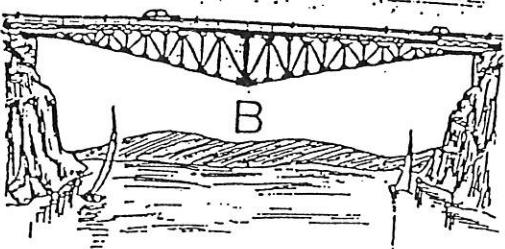
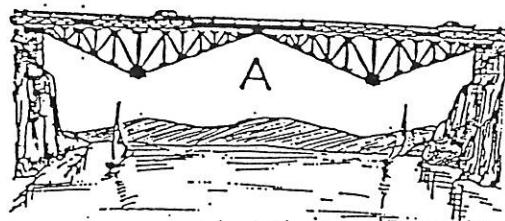
26. When the handle is moved back and forth the wheel will turn:

A, in direction A
B, in direction B
C, first one then the other



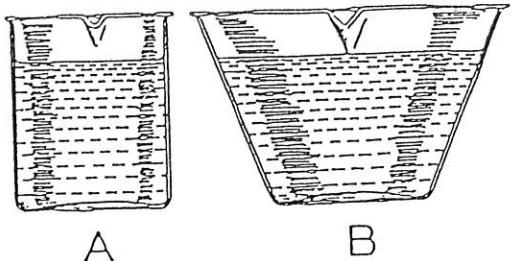
27. When this car is slowed by the brakes, the load on the front wheel is:

(A) less
(B) greater
(C) unchanged

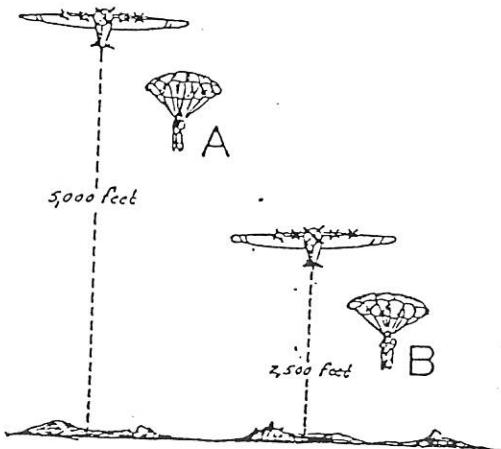


28. Which bridge is stronger? (If equal, mark C)

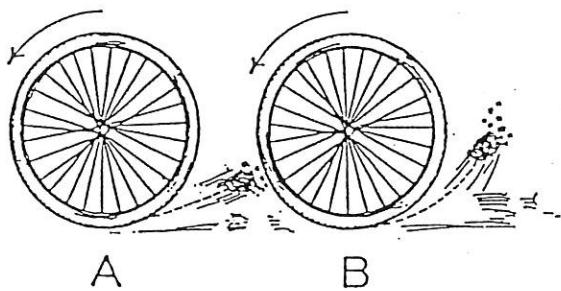
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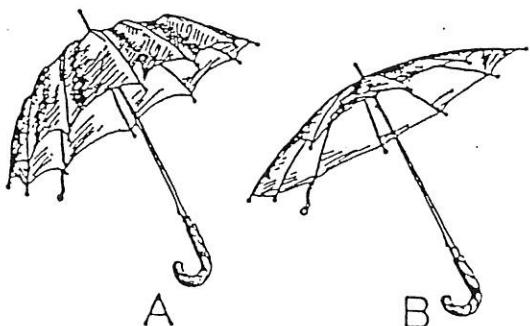
29. In which of these round jars will the liquid press harder on the bottom? (If equal, mark C)



30. Which man will be falling faster when he reaches the ground? (If equal, mark C)

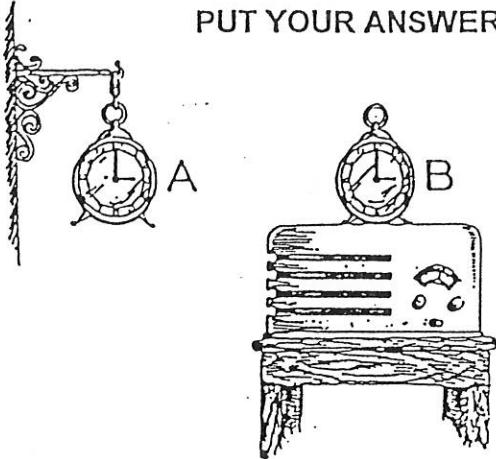


31. Which picture shows the way mud flies off a bicycle-wheel?

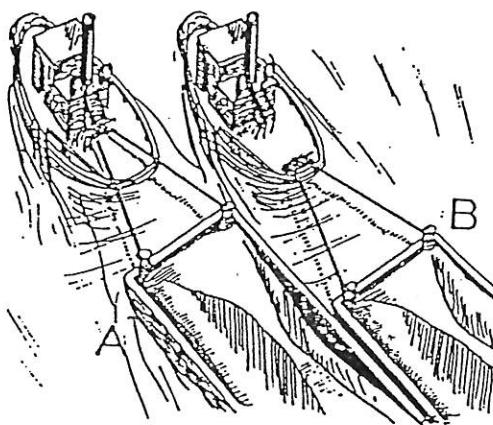


32. Which umbrella is more likely to turn inside out in high wind? (If both, mark C)

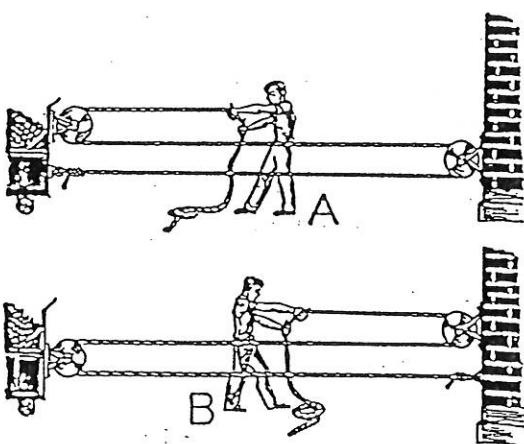
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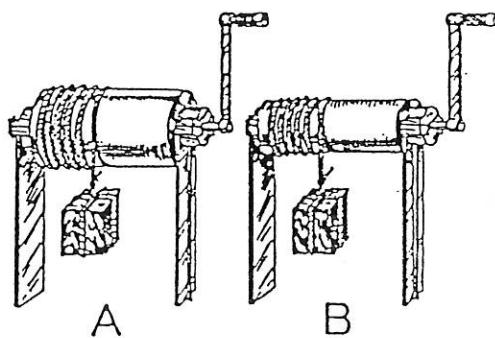
33. Where will the alarm clock sound louder? (If equal, mark C)



34. Which tug will be more easily handled? (If equal, mark C)

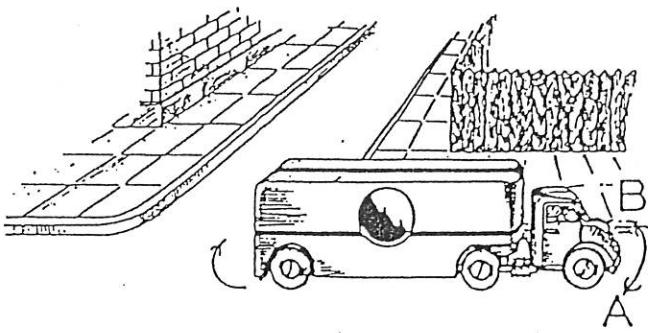


35. Which man will have to pull harder in order to move the load? (If equal, mark C)

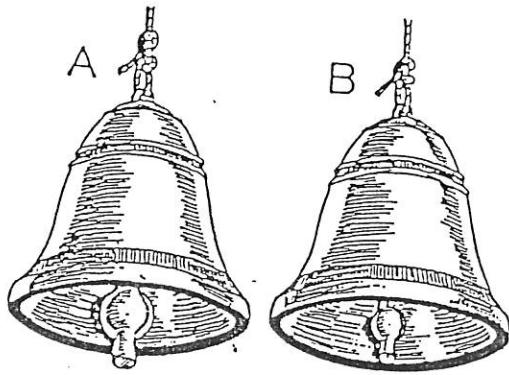


36. With which windlass can a man lift the heavier weight? (If equal, mark C)

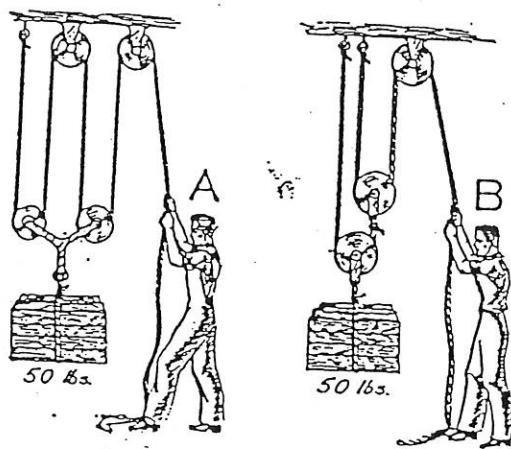
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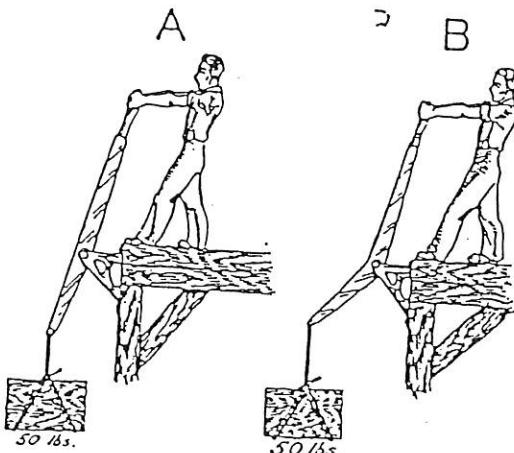
37. Which way should the driver first turn his front wheels to back the trailer in the direction shown?



38. Which bell will have the higher note? (If equal, mark C)



39. Which man has to pull harder? (If equal, mark C)

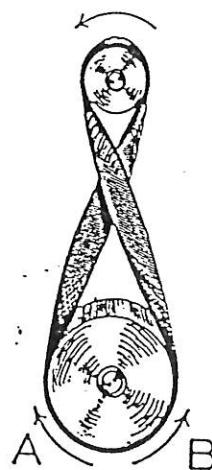


40. Which man has to pull harder? (If equal, mark C)

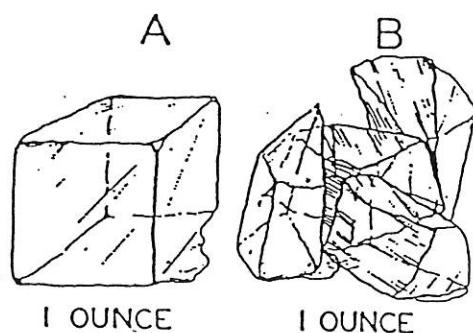
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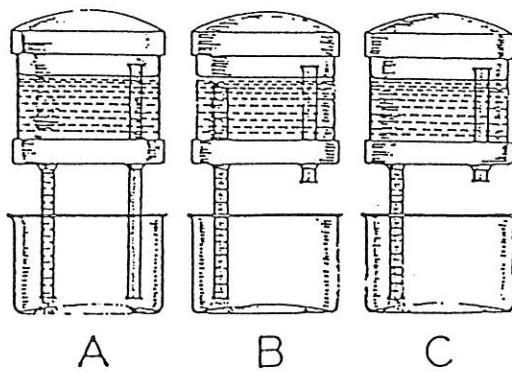
41. Which is the better way to lift the shovel? (If equal, mark C.)



42. If the upper wheel goes in the direction shown, in which direction will the lower wheel go? (If either, mark C.)

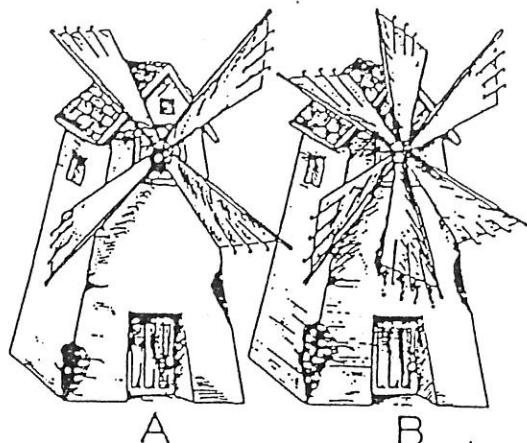


43. Which ounce of ice will cool a drink more quickly? (If equal, mark C.)

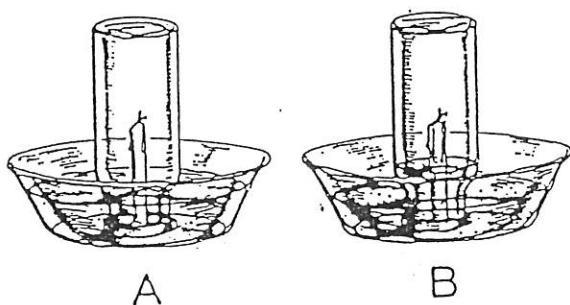


44. Which jar will let the water run out?

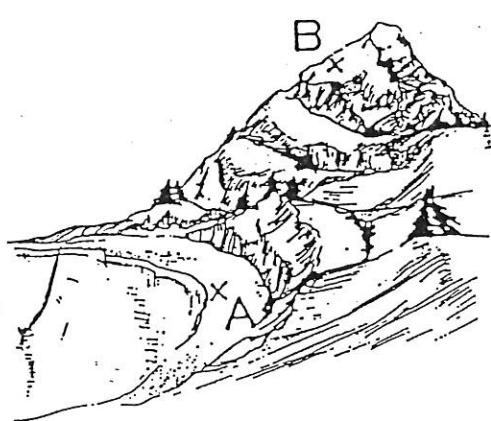
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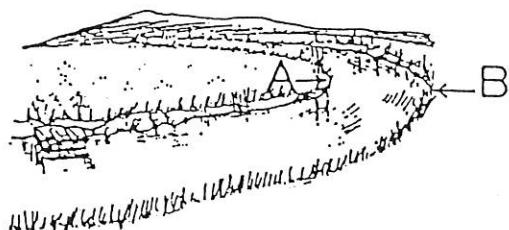
45. Which windmill will do more work? (If equal, mark C.)



46. In which picture has the candle been burning? (If neither, mark C.)



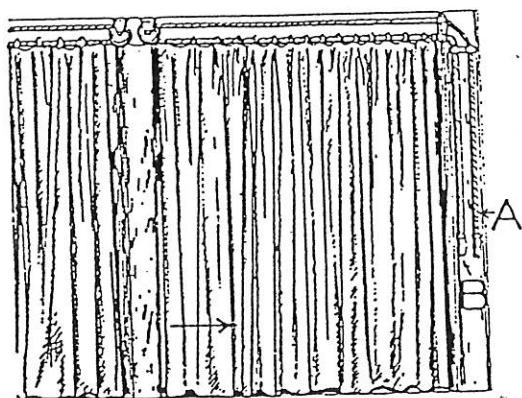
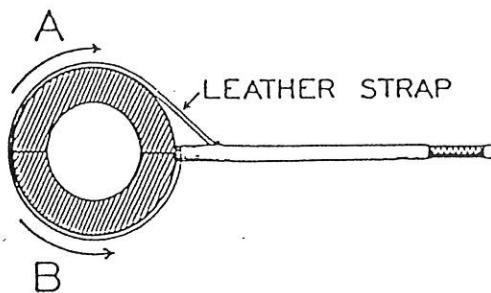
47. At which spot will it take longer to cook potatoes by boiling? (If equal, mark C.)



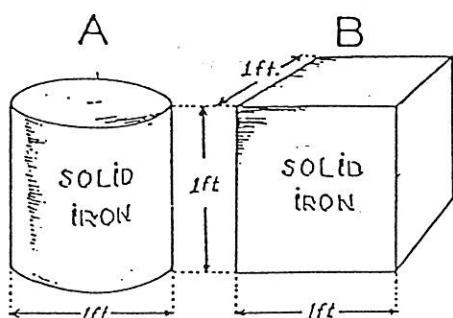
48. Which bank of the river is more likely to wear away?

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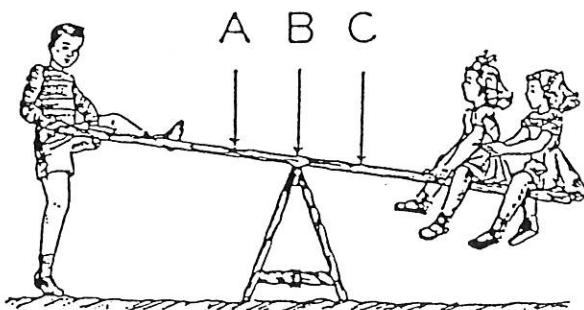
49. In which direction can this wrench turn the pipe? (If either, mark C.)



50. Which end of the cord should you pull to open the curtain? (If either, mark C)

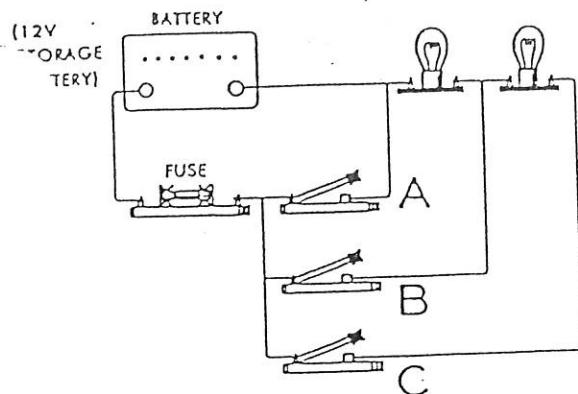


51. Which weighs more? (If equal, mark C)

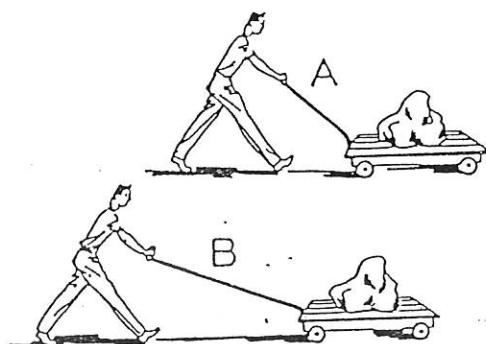


52. At which point is the seesaw most likely to break?

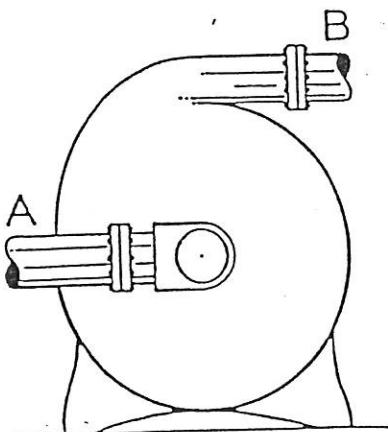
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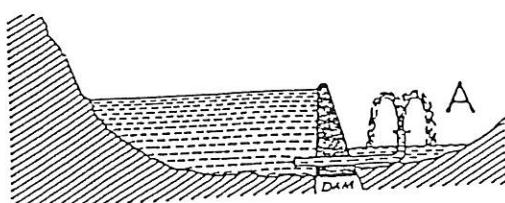
53. Which switch will light both lamps?



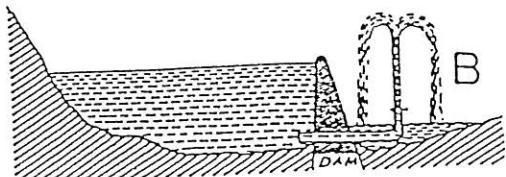
54. Which way can the man pull the heavier load? (if equal, mark C)



55. Through which pipe will water enter this pump? (If either, mark C)

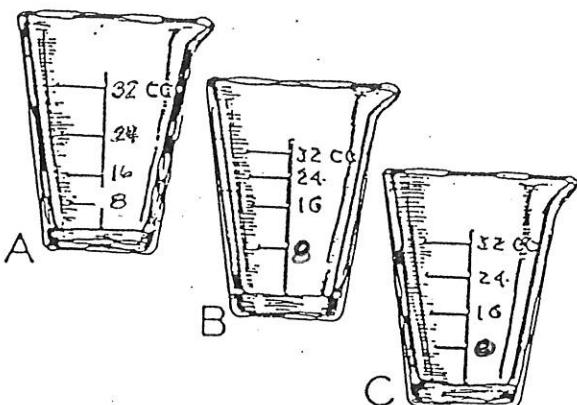


56. Which of these pictures shows what would actually happen? (If either, mark C)



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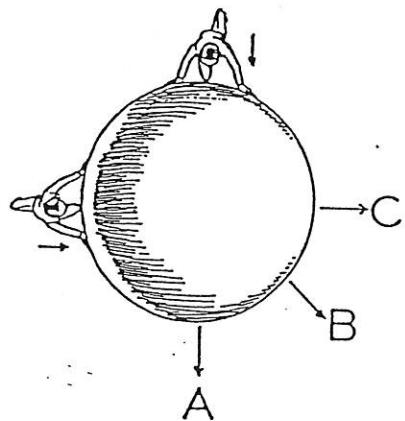
57. Which measure is properly marked?



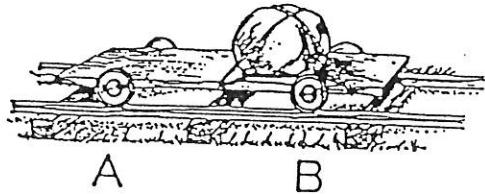
58. Which weighs more? (if equal, mark C)



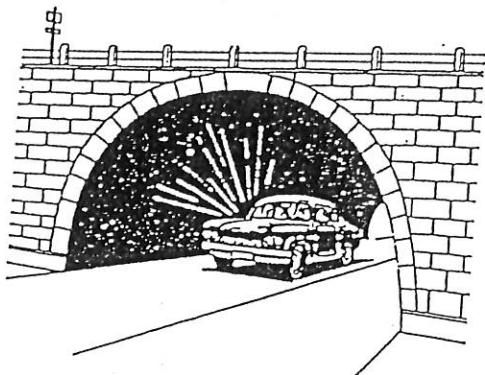
59. If the two men are pushing against the pushball in the direction shown, in which direction is it most likely to go?



60. Which wheel presses harder against the rail? (If equal, mark C)

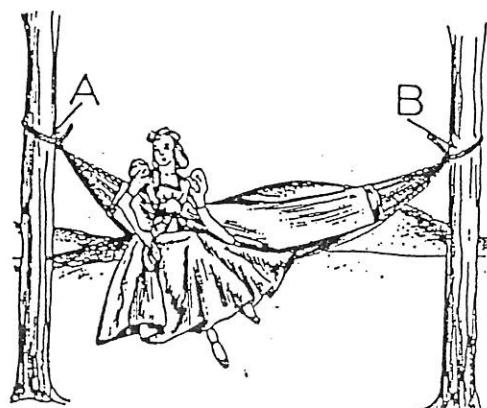


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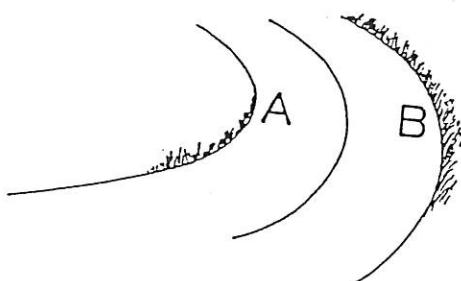


61. When the automobile is in a tunnel how will the horn sound?

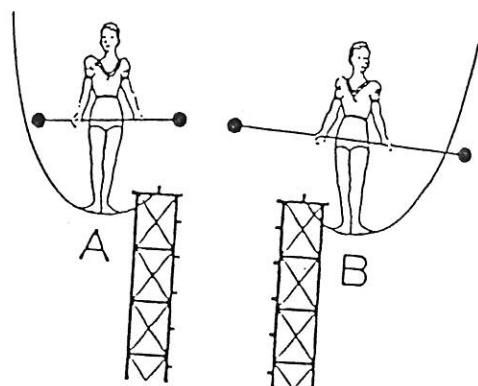
- a) louder than normal
- b) less loud than normal
- c) normally loud



62. Which rope is under more strain?
(If equal, mark C)

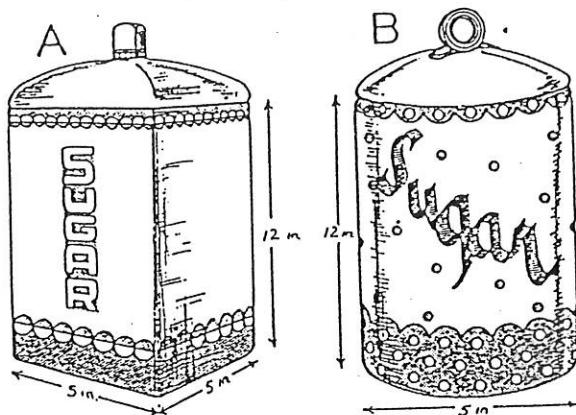


63. Which side of the road should be built higher? (If equal, mark C)

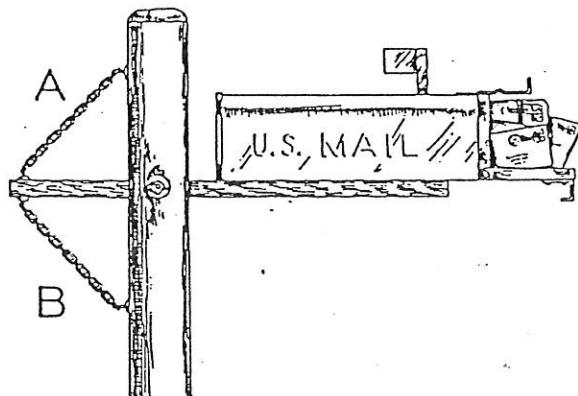


64. Which acrobat will find it easier to keep her balance? (If equal, mark C)

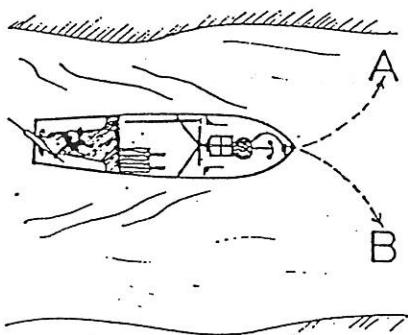
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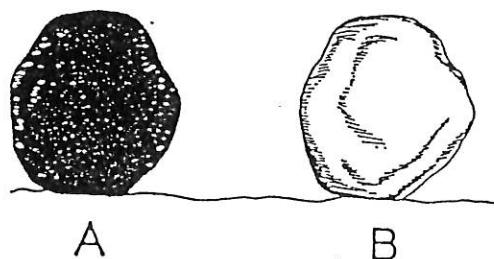
65. Which metal container will hold more sugar? (If equal, mark C)



66. Which one piece of chain will hold up the mailbox shelf? (If neither, mark C)

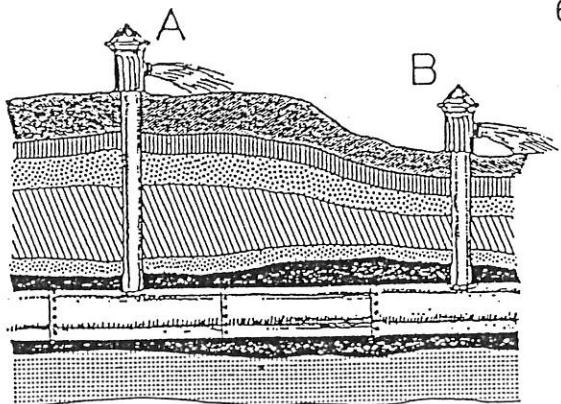


67. Which way will the boat go? (If either, mark C)



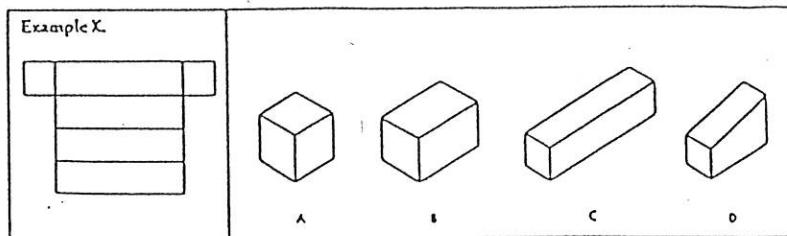
68. Which rock will get hotter in the sun? (If equal, mark C)

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69. From which fire hydrant will the water spurt farther? (If equal, mark C)

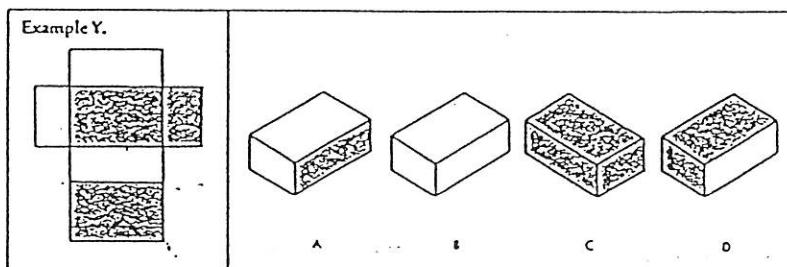
This part of the test consists of patterns which can be folded into figures. To the right of each pattern there are four figures. You are to decide which one of these figures can be made from the pattern shown. The pattern always shows the outside of the figure. Here is an example:



In Example X, which one of the four figures - A, B, C, D-can be made from the pattern at the left? A and B certainly cannot be made; they are not the right shape. C is correct both in shape and size. You cannot make D from this pattern. Therefore, the space under C has been filled in on line X of your Answer Sheet.

Remember: In this test there will always be a row of four figures following each pattern.

In every row there is only one correct figure.



In Example Y all the figures next to the pattern are correct in shape, but only one of them can be made from this pattern. Note that when the pattern is folded, the figure it makes will have three gray surfaces. Two of these will be the largest surfaces, either of which could be the top or the bottom of a box. The other will be one of the smallest surfaces, which could be one end of the box.

Now look at the four figures:

Figure A is wrong. The long, narrow side is not gray in the pattern and the largest surface must be gray,

Figure B is wrong. The largest surface must be gray, although the gray end could be at the back

Figure C is wrong. The gray top and end are all right, but there is no long gray side in the pattern

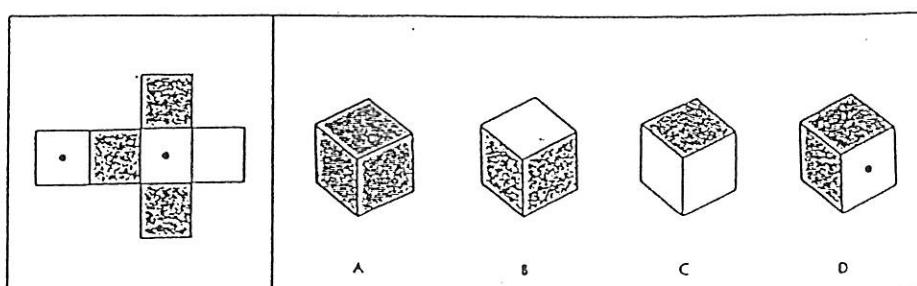
Figure D is correct. A large gray surface is shown as the top, and the end surface shown is also gray.

So, you see, all four figures are correct in shape, but only one-D-shows the gray surfaces correctly.

Remember: The surface you see in the pattern must always be the outside surface of the completed figure. Study the pattern carefully and decide which figure can be made from it. Only one of the four figures following the pattern is correct. Show your choice on the Answer Sheet by filling in the space under the letter which is the same as that of the figure you have chosen.

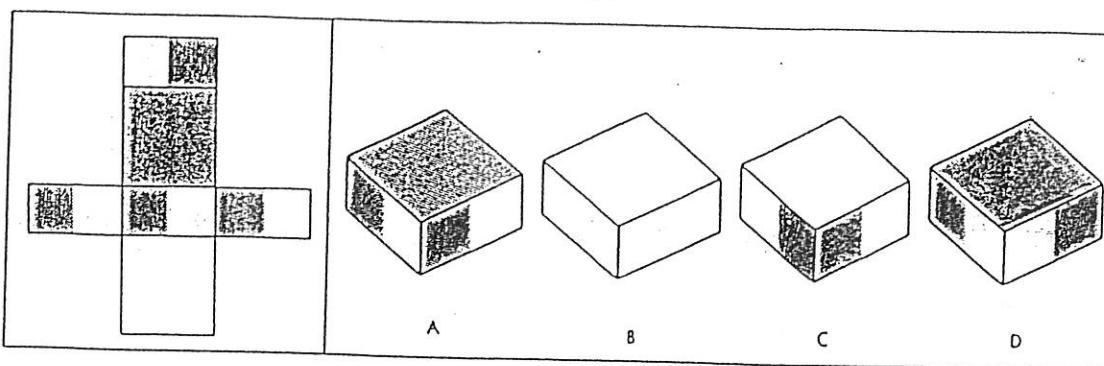
70/

PUT YOUR ANSWERS ON THE ANSWER SHEET

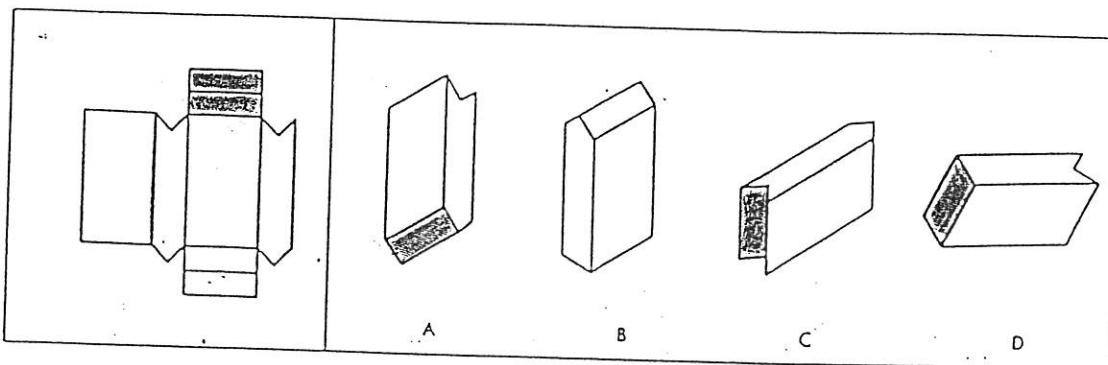


PUT YOUR ANSWERS ON THE ANSWER SHEET

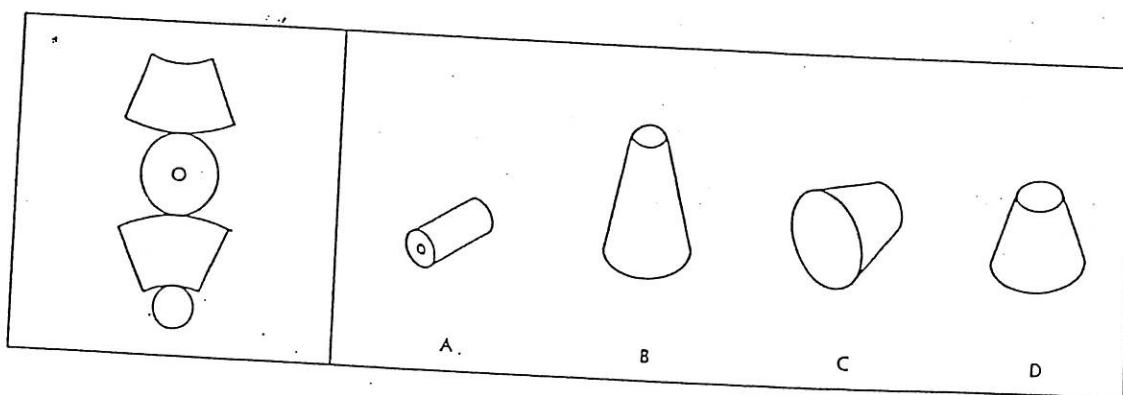
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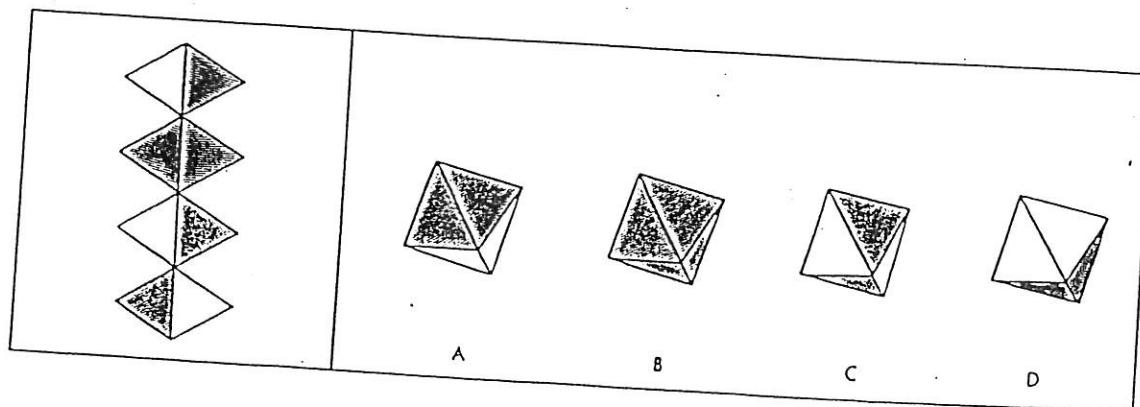
72.



73.

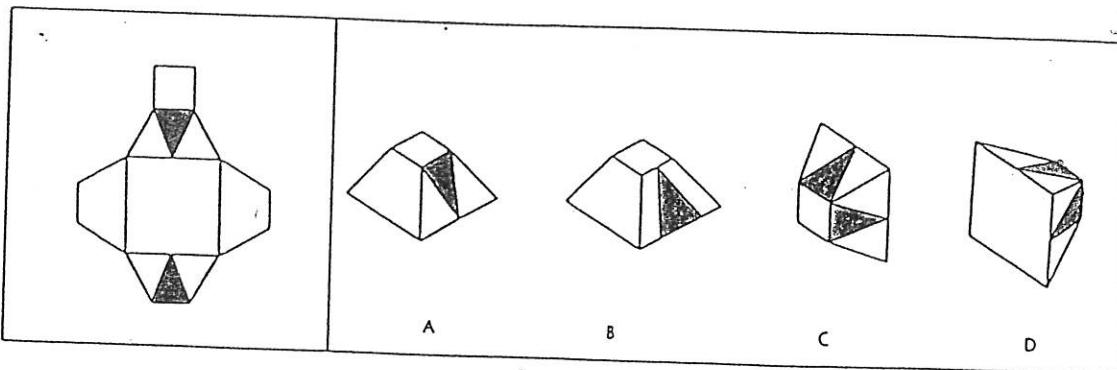


74.

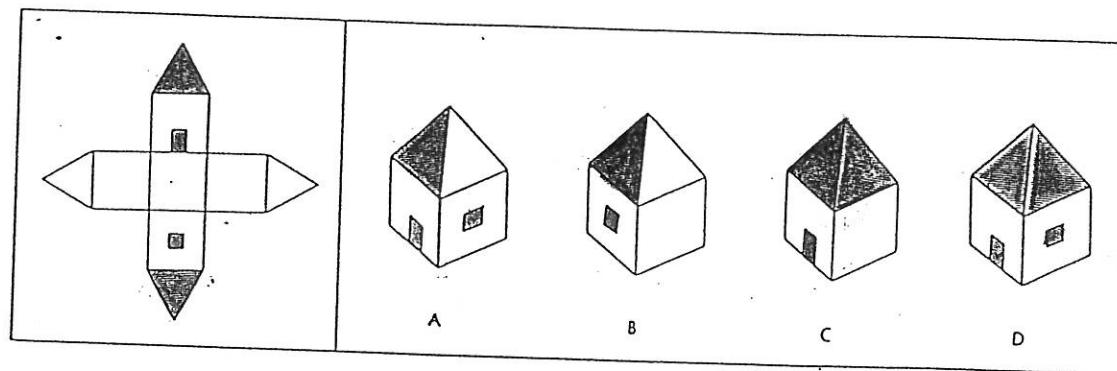


PUT YOUR ANSWERS ON THE ANSWER SHEET

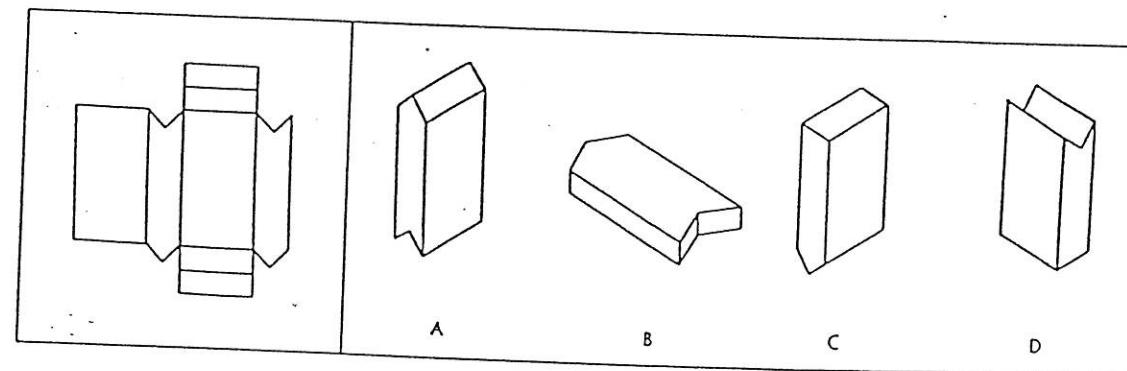
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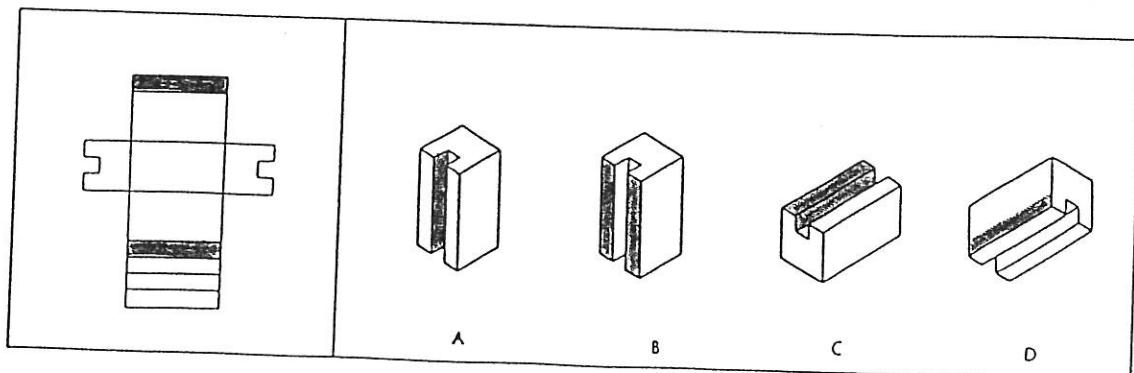
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77.

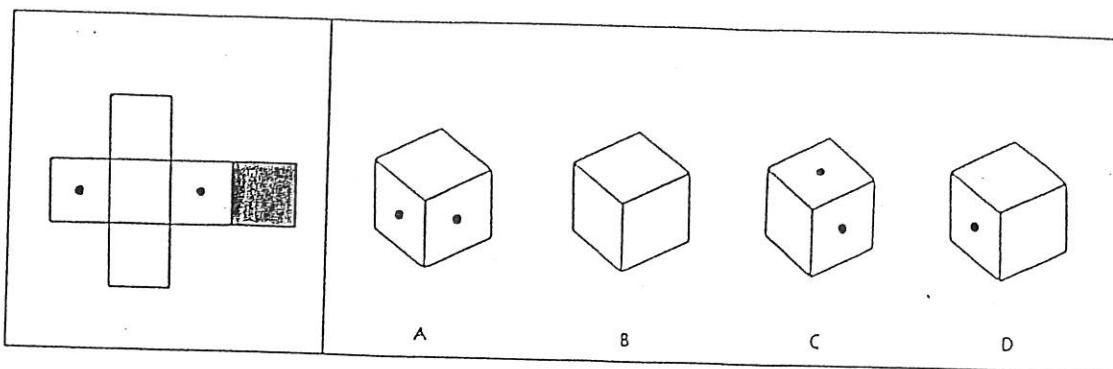


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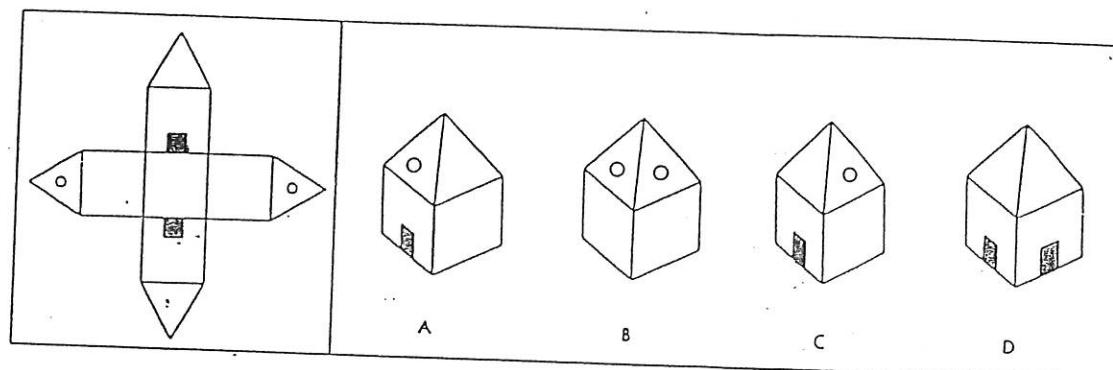


PUT YOUR ANSWERS ON THE ANSWER SHEET

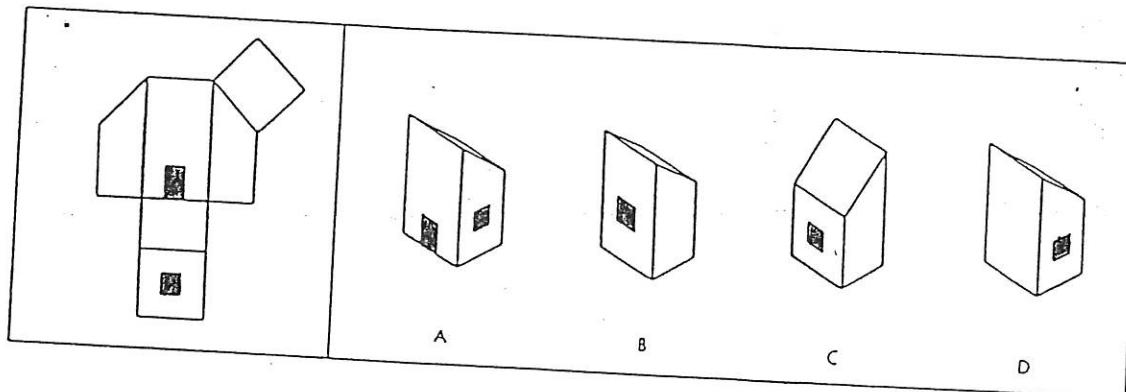
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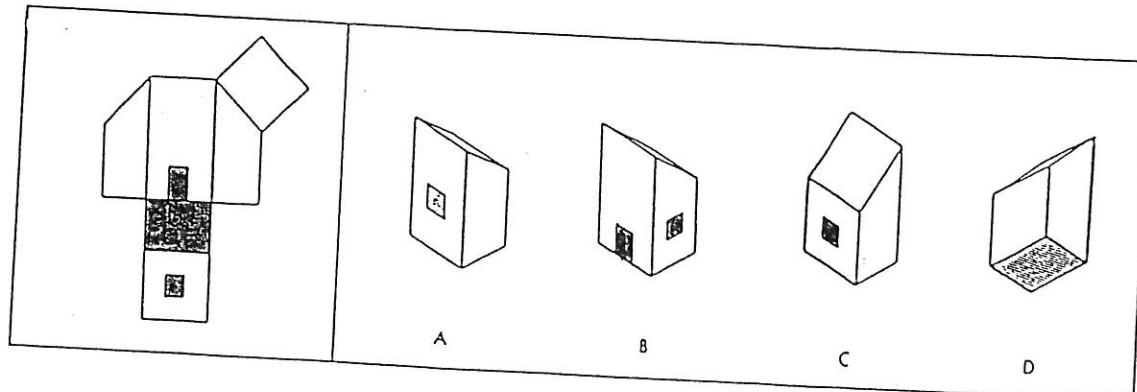
80.



81.

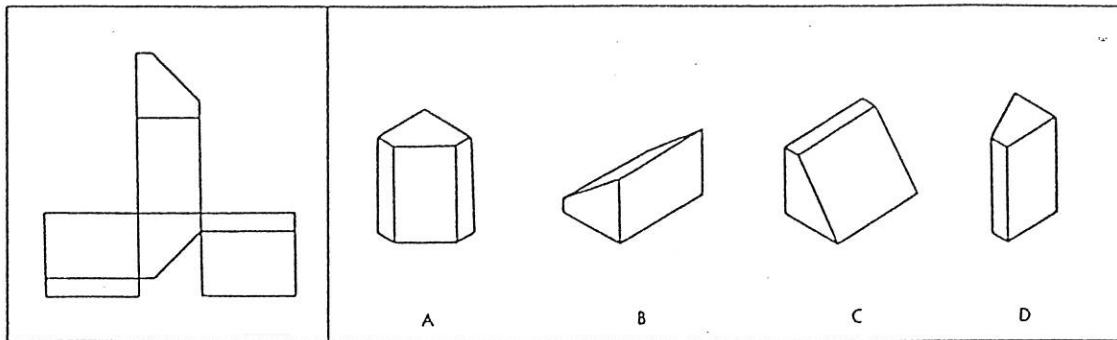


82.

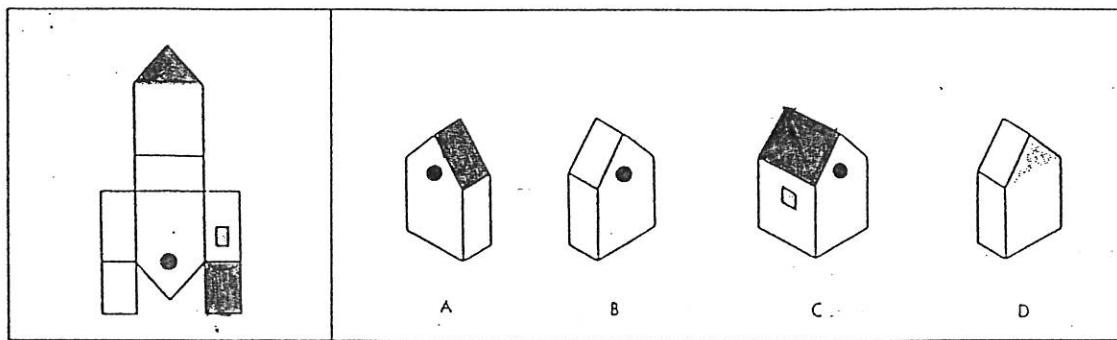


PUT YOUR ANSWERS ON THE ANSWER SHEET

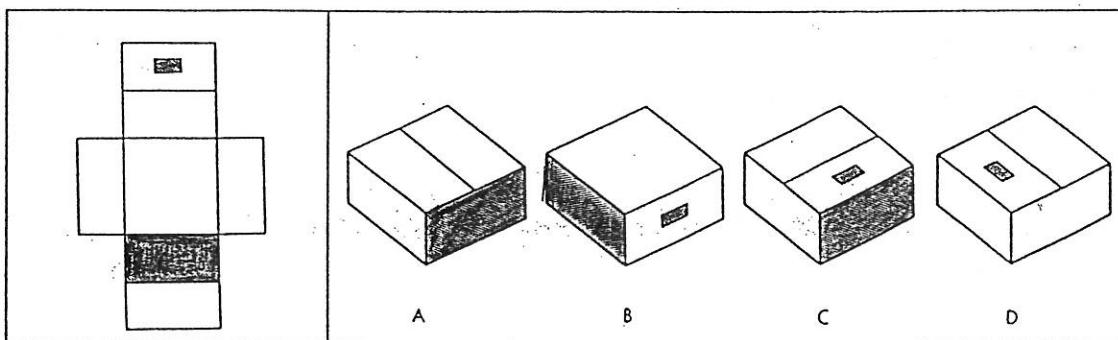
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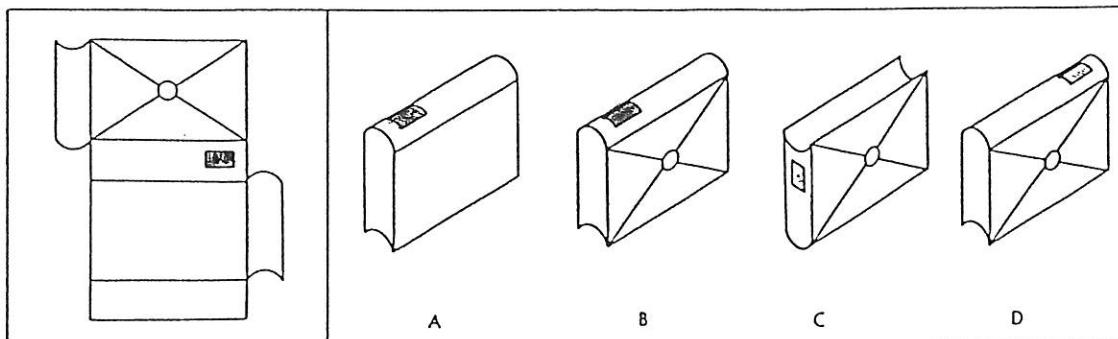
84.



85.

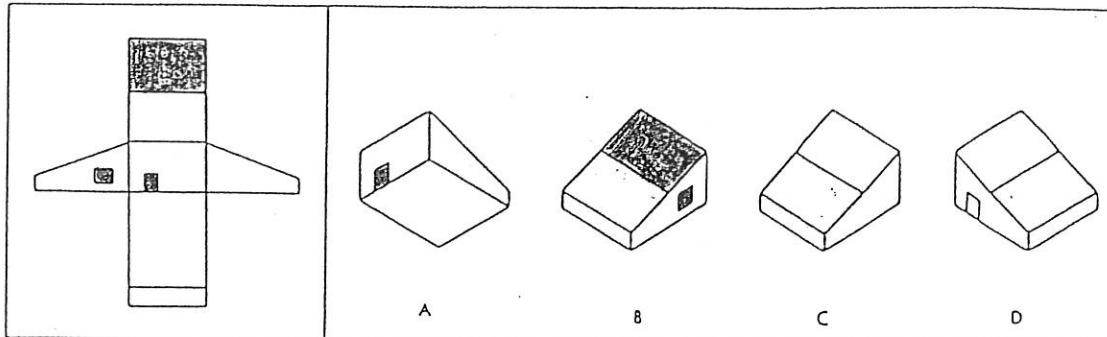


86.

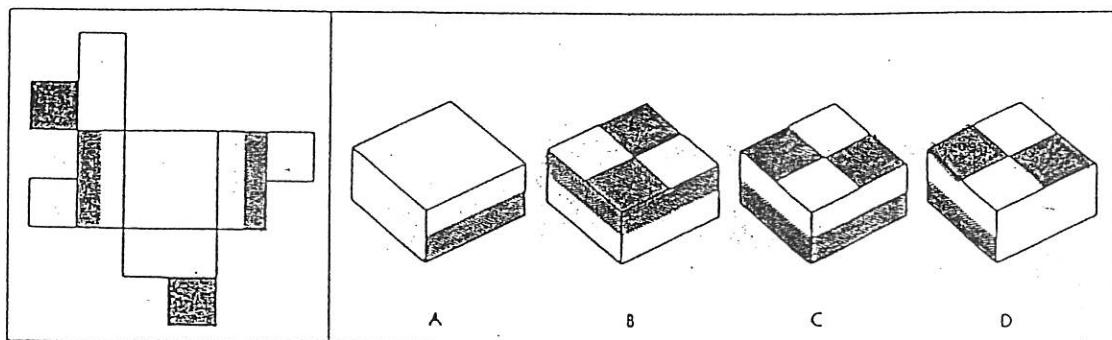


PUT YOUR ANSWERS ON THE ANSWER SHEET

87.



88.



NUMERICAL ABILITY

DIRECTIONS

This part consists of numerical problems. Next to each problem there are five answers. You are to pick out the correct answer and fill in the space under its letter on the Answer Sheet.

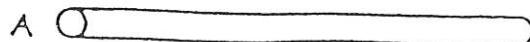
Remember: Each answer must be reduced to its simplest terms. For example, if two choices are $1\frac{1}{2}$ and $1\frac{2}{4}$, only the $1\frac{1}{2}$ is correct.

DO ALL YOUR FIGURING ON THE SEPARATE SHEET OF SCRATCH PAPER.

Work as rapidly and as accurately as you can. Do not spend a long time on any one problem. If you are not sure of an answer, mark the choice which is your best guess.

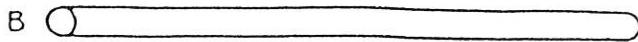
PUT YOUR ANSWERS ON THE ANSWER SHEET

89. What is the total length of the 3 pipes?



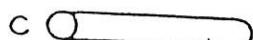
156 centimetres

- a) 312 centimetres
- b) 402 centimetres
- c) 412 centimetres
- d) 512 centimetres



192 centimetres

90. B is how many times as long as C?



64 centimetres.

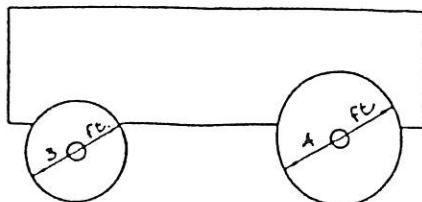
91. What would be the length of a pipe that is 75% as long as C?

- a) 192 centimetres
- b) 144 centimetres
- c) 54 centimetres
- d) 48 centimetres

92. A piece 4.35 cm. long and a piece 6.25 cm. long are cut from a steel rod 16.40 cm. long. How long is the remaining piece?

- a) 6.20 cm.
- b) 5.80 cm.
- c) 5.70 cm.
- d) 4.80 cm.

93. When the larger wheel has made 60 complete turns, how many has the smaller wheel made?

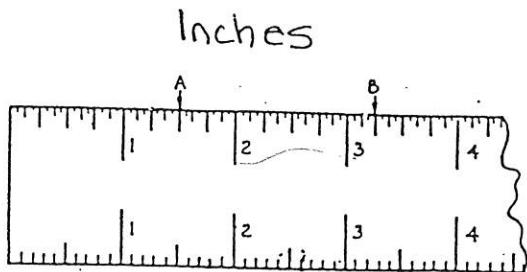


- a) 45
- b) 60
- c) 75
- d) 80

PUT YOUR ANSWERS ON THE ANSWER SHEET

94. What is the length of A plus B?

- a) $4\frac{1}{4}$ inches
- b) $4\frac{3}{8}$ inches
- c) $4\frac{3}{4}$ inches
- d) $4\frac{7}{8}$ inches

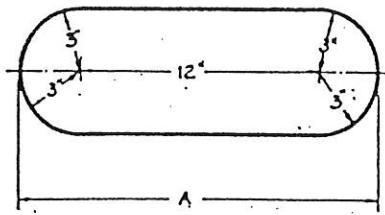


95. How much larger is the reading at B than the reading at A?

- a) $1\frac{1}{4}$ inches
- b) $1\frac{3}{4}$ inches
- c) 2.0 inches
- d) $2\frac{1}{4}$ inches

96. How much is the reading at B multiplied by the reading at A?

- a) $4\frac{1}{4}$ square inches
- b) $4\frac{1}{2}$ square inches
- c) $4\frac{3}{4}$ square inches
- d) $4\frac{7}{8}$ square inches

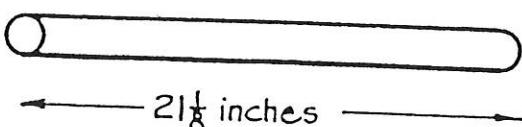


97. How long is A?

- a) 12 inches
- b) 15 inches
- c) 16 inches
- d) 18 inches

98. This rod is to be cut into 2 parts so that one is twice as long as the other. If $\frac{1}{8}$ inch is wasted in cutting, how long will the longer part be?

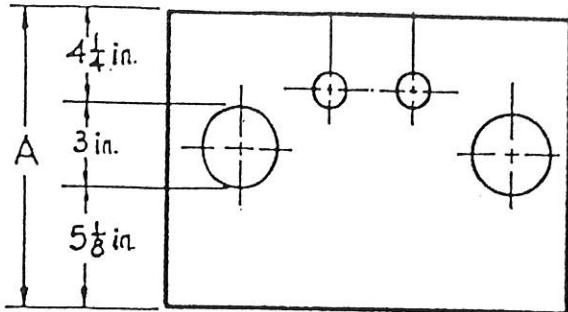
- a) 14 inches
- b) $10\frac{1}{2}$ inches
- c) 7 inches
- d) $5\frac{1}{4}$ inches



99. How many 2-inch pieces can be cut from such a rod if $\frac{1}{8}$ inch is wasted in each cut?

- a) $10\frac{1}{2}$
- b) 10
- c) 9
- d) 5

PUT YOUR ANSWERS ON THE ANSWER SHEET



100. What is distance A?

- a) $12\frac{3}{4}$ inches
- b) $12\frac{3}{8}$ inches
- c) $12\frac{1}{4}$ inches
- d) $12\frac{1}{8}$ inches

NAME _____

QUESTION 1	A	<input checked="" type="radio"/> B	C	QUESTION 26	A	<input checked="" type="radio"/> B	C
QUESTION 2	A	<input checked="" type="radio"/> B	C	QUESTION 27	A	<input checked="" type="radio"/> B	C
QUESTION 3	<input checked="" type="radio"/> A	B	C	QUESTION 28	A	<input checked="" type="radio"/> B	C
QUESTION 4	<input checked="" type="radio"/> A	B	C	QUESTION 29	A	B	<input checked="" type="radio"/> C
QUESTION 5	<input checked="" type="radio"/> A	B	C	QUESTION 30	A	B	<input checked="" type="radio"/> C
QUESTION 6	<input checked="" type="radio"/> A	<input checked="" type="radio"/> B	C	QUESTION 31	A	<input checked="" type="radio"/> B	C
QUESTION 7	<input checked="" type="radio"/> A	B	C	QUESTION 32	A	<input checked="" type="radio"/> B	C
QUESTION 8	A	<input checked="" type="radio"/> B	C	QUESTION 33	<input checked="" type="radio"/> A	B	C
QUESTION 9	<input checked="" type="radio"/> A	B	C	QUESTION 34	<input checked="" type="radio"/> A	B	C
QUESTION 10	A	<input checked="" type="radio"/> B	C	QUESTION 35	A	B	<input checked="" type="radio"/> C
QUESTION 11	A	<input checked="" type="radio"/> B	C	QUESTION 36	A	<input checked="" type="radio"/> B	C
QUESTION 12	A	B	<input checked="" type="radio"/> C	QUESTION 37	<input checked="" type="radio"/> A	B	C
QUESTION 13	<input checked="" type="radio"/> A	B	C	QUESTION 38	A	<input checked="" type="radio"/> B	C
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QUESTION 15	A	<input checked="" type="radio"/> B	C	QUESTION 40	<input checked="" type="radio"/> A	B	C
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QUESTION 17	A	B	<input checked="" type="radio"/> C	QUESTION 42	<input checked="" type="radio"/> A	B	C
QUESTION 18	A	B	<input checked="" type="radio"/> C	QUESTION 43	A	<input checked="" type="radio"/> B	C
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QUESTION 20	<input checked="" type="radio"/> A	B	C	QUESTION 45	A	<input checked="" type="radio"/> B	C
QUESTION 21	<input checked="" type="radio"/> A	B	C	QUESTION 46	A	<input checked="" type="radio"/> B	C
QUESTION 22	<input checked="" type="radio"/> A	B	C	QUESTION 47	<input checked="" type="radio"/> A	B	C
QUESTION 23	<input checked="" type="radio"/> A	B	C	QUESTION 48	A	<input checked="" type="radio"/> B	C
QUESTION 24	<input checked="" type="radio"/> A	B	C	QUESTION 49	<input checked="" type="radio"/> A	B	C
QUESTION 25	A	<input checked="" type="radio"/> B	C	QUESTION 50	A	<input checked="" type="radio"/> B	C

NAME _____

- | | | | |
|-------------|------------------------------------|------------------------------------|------------------------------------|
| QUESTION 51 | A | <input checked="" type="radio"/> B | C |
| QUESTION 52 | A | <input checked="" type="radio"/> B | C |
| QUESTION 53 | A | B | <input checked="" type="radio"/> C |
| QUESTION 54 | A | <input checked="" type="radio"/> B | C |
| QUESTION 55 | <input checked="" type="radio"/> A | B | C |
| QUESTION 56 | <input checked="" type="radio"/> A | B | C |
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| QUESTION 68 | <input checked="" type="radio"/> A | B | C |
| QUESTION 69 | A | <input checked="" type="radio"/> B | C |

NAME _____

QUESTION 70	A	B	C	D	QUESTION 89	A	B	C	D
QUESTION 71	(A)	B	C	D	QUESTION 90	A	(B)	C	D
QUESTION 72	A	B	(C)	D	QUESTION 91	A	B	C	(D)
QUESTION 73	A	B	C	(D)	QUESTION 92	A	(B)	C	D
QUESTION 74	A	B	(C)	D	QUESTION 93	A	B	C	(D)
QUESTION 75	(A)	B	C	D	QUESTION 94	A	B	(C)	D
QUESTION 76	A	(B)	C	D	QUESTION 95	A	(B)	C	D
QUESTION 77	(A)	B	C	D	QUESTION 96	A	B	C	(D)
QUESTION 78	A	(B)	C	D	QUESTION 97	A	B	C	(D)
QUESTION 79	A	B	C	(D)	QUESTION 98	(A)	B	C	D
QUESTION 80	A	B	(C)	D	QUESTION 99	A	(B)	C	D
QUESTION 81	A	B	(C)	D	QUESTION 100	A	(B)	C	D
QUESTION 82	A	B	(C)	D					
QUESTION 83	(A)	B	C	D					
QUESTION 84	A	B	C	(D)					
QUESTION 85	A	B	C	(D)					
QUESTION 86	A	(B)	C	D					
QUESTION 87	(A)	B	C	D					
QUESTION 88	(A)	B	C	D					