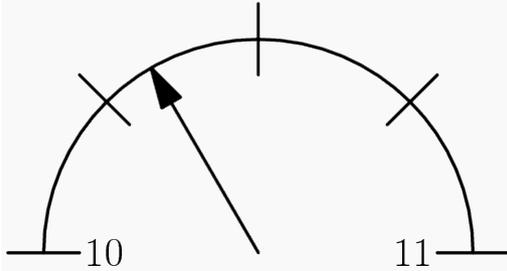


# 1988 AJHSME Problems

## Problem 1

The diagram shows part of a scale of a measuring device. The arrow indicates an approximate reading of



- (A) 10.05    (B) 10.15    (C) 10.25    (D) 10.3    (E) 10.6

## Problem 2

The product  $8 \times .25 \times 2 \times .125 =$

- (A)  $\frac{1}{8}$     (B)  $\frac{1}{4}$     (C)  $\frac{1}{2}$     (D) 1    (E) 2

## Problem 3

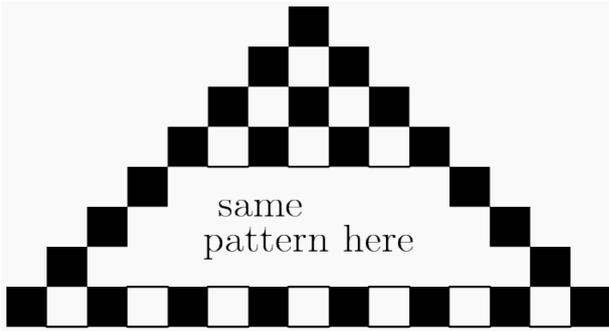
$$\frac{1}{10} + \frac{2}{20} + \frac{3}{30} =$$

- (A) .1    (B) .123    (C) .2    (D) .3    (E) .6

## Problem 4

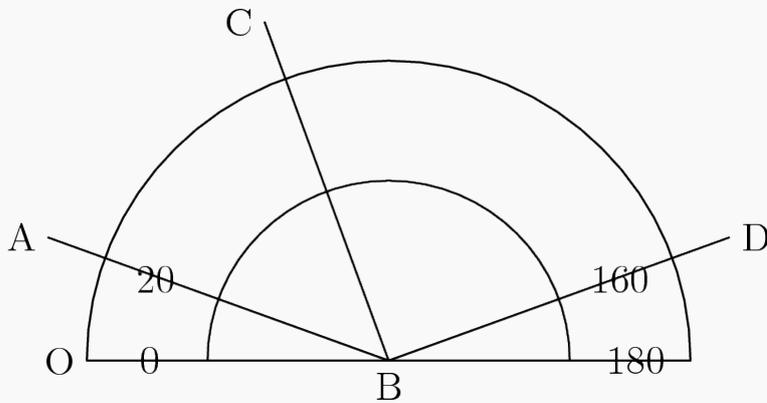
The figure consists of alternating light and dark squares. The number of dark squares exceeds the number of light squares by

- (A) 7    (B) 8    (C) 9    (D) 10    (E) 11



### Problem 5

If  $\angle CBD$  is a right angle, then this protractor indicates that the measure of  $\angle ABC$  is approximately



- (A)  $20^\circ$     (B)  $40^\circ$     (C)  $50^\circ$     (D)  $70^\circ$     (E)  $120^\circ$

### Problem 6

$$\frac{(.2)^3}{(.02)^2} =$$

- (A) .2    (B) 2    (C) 10    (D) 15    (E) 20

### Problem 7

$2.46 \times 8.163 \times (5.17 + 4.829)$  is closest to

- (A) 100    (B) 200    (C) 300    (D) 400    (E) 500

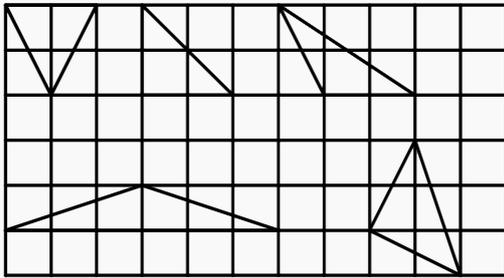
### Problem 8

Betty used a calculator to find the product  $0.075 \times 2.56$ . She forgot to enter the decimal points. The calculator showed 19200. If Betty had entered the decimal points correctly, the answer would have been

- (A) .0192    (B) .192    (C) 1.92    (D) 19.2    (E) 192

### Problem 9

An isosceles triangle is a triangle with two sides of equal length. How many of the five triangles on the square grid below are isosceles?



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

### Problem 10

Chris' birthday is on a Thursday this year. What day of the week will it be 60 days after her birthday?

- (A) Monday    (B) Wednesday    (C) Thursday    (D) Friday    (E) Saturday

### Problem 11

$\sqrt{164}$  is

- (A) 42    (B) less than 10    (C) between 10 and 11    (D) between 11 and 12    (E) b

### Problem 12

Suppose the estimated 20 billion dollar cost to send a person to the planet Mars is shared equally by the 250 million people in the U.S. Then each person's share is

- (A) 40 dollars    (B) 50 dollars    (C) 80 dollars    (D) 100 dollars    (E) 125 dollars

### Problem 13

If rose bushes are spaced about 1 foot apart, approximately how many bushes are needed to surround a circular patio whose radius is 12 feet?

- (A) 12    (B) 38    (C) 48    (D) 75    (E) 450

### Problem 14

$\diamond$  and  $\Delta$  are whole numbers and  $\diamond \times \Delta = 36$ . The largest possible value of  $\diamond + \Delta$  is

- (A) 12    (B) 13    (C) 15    (D) 20    (E) 37

### Problem 15

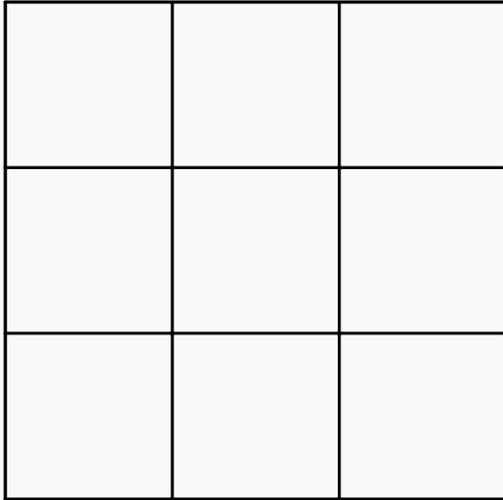
The reciprocal of  $\left(\frac{1}{2} + \frac{1}{3}\right)$  is

- (A)  $\frac{1}{6}$     (B)  $\frac{2}{5}$     (C)  $\frac{6}{5}$     (D)  $\frac{5}{2}$     (E) 5

### Problem 16

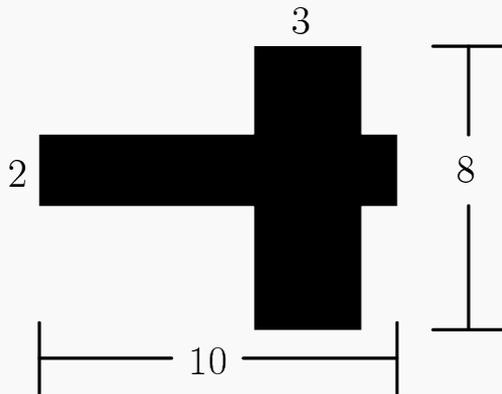
Placing no more than one X in each small square, what is the greatest number of X's that can be put on the grid shown without getting three X's in a row vertically, horizontally, or diagonally?

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



### Problem 17

The shaded region formed by the two intersecting perpendicular rectangles, in square units, is



- (A) 23      (B) 38      (C) 44      (D) 46      (E) unable to be determined from the information

### Problem 18

The average weight of 6 boys is 150 pounds and the average weight of 4 girls is 120 pounds. The average weight of the 10 children is

- (A) 135 pounds      (B) 137 pounds      (C) 138 pounds      (D) 140 pounds      (E) 141 pounds

### Problem 19

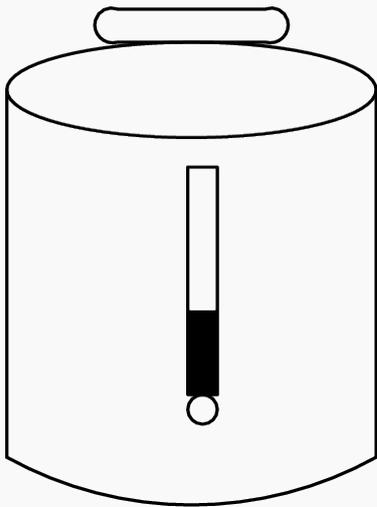
What is the 100th number in the arithmetic sequence: 1, 5, 9, 13, 17, 21, 25, ...?

- (A) 397    (B) 399    (C) 401    (D) 403    (E) 405

## Problem 20

The glass gauge on a cylindrical coffee maker shows that there are 45 cups left when the coffee maker is 36% full. How many cups of coffee does it hold when it is full?

- (A) 80    (B) 100    (C) 125    (D) 130    (E) 262



## Problem 21

A fifth number,  $n$ , is added to the set  $\{3, 6, 9, 10\}$  to make the mean of the set of five numbers equal to its median. The number of possible values of  $n$  is

- (A) 1    (B) 2    (C) 3    (D) 4    (E) more than 4

## Problem 22

Tom's Hat Shoppe increased all original prices by 25%. Now the shoppe is having a sale where all prices are 20% off these increased prices. Which statement best describes the sale price of an item?

- (A) The sale price is 5% higher than the original price.  
(B) The sale price is higher than the original price, but by less than 5%.  
(C) The sale price is higher than the original price, but by more than 5%.  
(D) The sale price is lower than the original price.

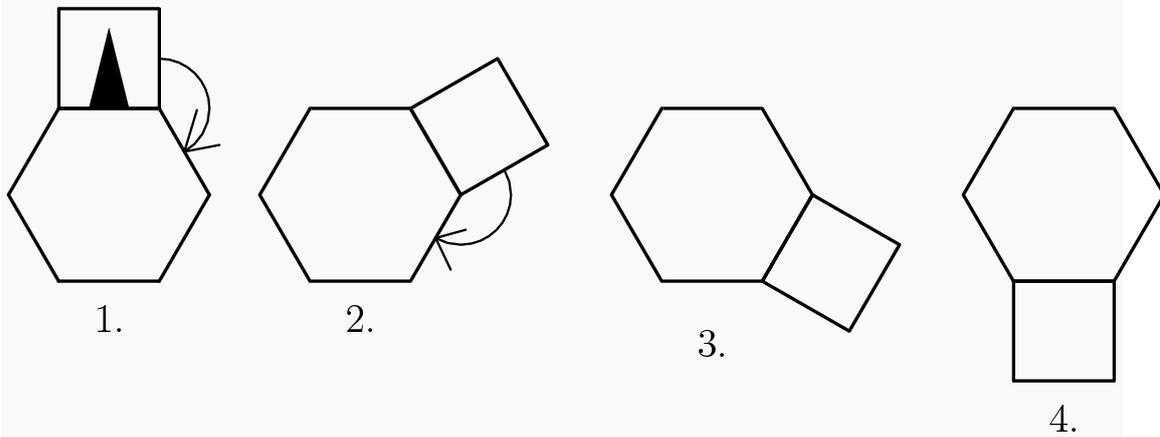
(E) The sale price is the same as the original price.

### Problem 23

Maria buys computer disks at a price of 4 for  $\$5$  and sells them at a price of 3 for  $\$5$ . How many computer disks must she sell in order to make a profit of  $\$100$ ?

- (A) 100    (B) 120    (C) 200    (D) 240    (E) 1200

### Problem 24



The square in the first diagram "rolls" clockwise around the fixed regular hexagon until it reaches the bottom. In which position will the solid triangle be in diagram 4?

- (A)     (B)     (C)     (D) 

### Problem 25

A **palindrome** is a whole number that reads the same forwards and backwards. If one neglects the colon, certain times displayed on a digital watch are palindromes. Three examples are:  $1:01$ ,  $4:44$ , and  $12:21$ . How many times during a 12-hour period will be palindromes?

- (A) 57    (B) 60    (C) 63    (D) 90    (E) 93

