Minutes

Meet 3

Jan 92

ANSWERS

CAT 1 NUM. TH.

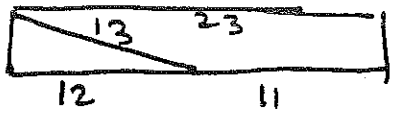
1. 95 $5+7+11+13+17+19+23$
2. 1 $14/15$ $15-14=1$
3. 27,720 $1\cdot2\cdot2\cdot2\cdot3\cdot3\cdot5\cdot7\cdot11$

CAT 2 GEOM.

1. 5
2. 24 $(\frac{1}{2}\cdot6\cdot2)4$

Difference is actually area of 4 triangles

3. 52



$13+23+11+5$

CAT 3 - MYSTERY

1. 24
2. 980 $(5\cdot2\cdot7)\cdot14$
3. 352 $852-500$

CAT 4 ARITH

1. 1/3
2. 2/3

$$\frac{84}{99} = \frac{84}{99}$$
$$-\frac{2}{11} = \frac{18}{99}$$
$$\frac{66}{99} = \frac{2}{3}$$

3. 2 - (5, 6) $4^3 < 100$ $7^4 > 2000$

CAT 5 ALG

1. $\{1, 2, -1, -2\}$
2. 1
3. 25 $x=4$ $y=-1$

$(x-y)^2 = (4-{-1})^2$

TEAM

1. A = 25
2. B = 1
3. C = 2
4. D = 39,500
5. E = 8
6. F = 1

5. ONE OPTION!

$$\frac{550}{330+30} = \frac{660}{x}$$

$x = 432$

$(330+110) - 432 = 8$

CATEGORY 1
NUMBER THEORY
JAN. 1992

1. _____
2. _____
3 _____

1. WHAT IS THE SUM OF THE PRIME NUMBERS THAT ARE GREATER THAN THREE AND LESS THAN 28?

2. WHEN $\frac{294}{315}$ IS REDUCED TO LOWEST TERMS, WHAT IS THE DIFFERENCE BETWEEN THE DENOMINATOR AND THE NUMERATOR?

3. WHAT IS THE LEAST COMMON MULTIPLE OF ALL OF THE POSITIVE INTEGERS LESS THAN 12?

CATEGORY 2

GEOMETRY

JAN, 1992

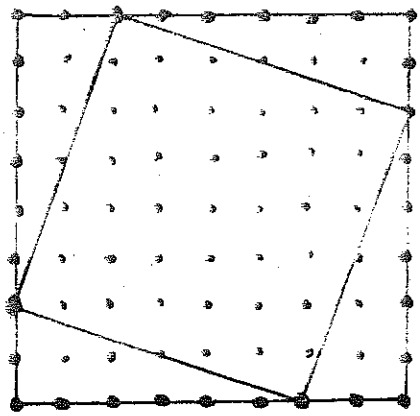
1. _____

2. _____ sq. units

3. _____ units

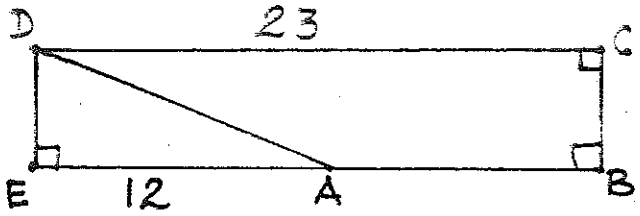
1. WHEN THE NUMBER OF SIDES OF A REGULAR POLYGON IS SUBTRACTED FROM THE NUMBER OF DIAGONALS OF THE POLYGON THE DIFFERENCE IS ZERO. HOW MANY SIDES DOES THIS POLYGON HAVE?

2.



THIS ARRAY OF DOTS FORMS AN OUTER SQUARE 8 UNITS BY 8 UNITS. WHAT IS THE DIFFERENCE BETWEEN THE AREA OF THE OUTER SQUARE AND THE AREA OF THE SQUARE DRAWN INSIDE?

3.



IF THE AREA OF $\triangle DAE$ IS 30 sq. units, WHAT IS THE PERIMETER OF TRAPEZOID ABCD?

CATEGORY 3

MYSTERY

JAN. 1992

1. _____

2. _____

3. _____

1. THE SUM OF TWO NUMBERS IS 40. THEIR DIFFERENCE IS EIGHT. WHAT IS THE LARGER OF THE TWO NUMBERS?

2. WHAT IS THE LARGEST THREE-DIGIT NUMBER DIVISIBLE BY 5, 7 AND 10 ?

3. ONE THOUSAND PEOPLE ARE EQUALLY SPACED IN A CIRCLE AND CONSECUTIVELY NUMBERED FROM ONE TO ONE THOUSAND. WHO IS DIRECTLY ACROSS FROM NUMBER 852 ?

CATEGORY 4

ARITHMETIC

JAN. 1992

1. _____

2. _____

3. _____

1. $.3 + .03 + .003 + .0003 + .00003 \ldots$

EXPRESS THIS INFINITE SUM AS A FRACTION.

2. $.\overline{84} - \frac{2}{11}$ EXPRESS THE DIFFERENCE AS A FRACTION IN LOWEST TERMS.

3. HOW MANY WHOLE NUMBERS ARE BETWEEN $\sqrt[3]{100}$ AND $\sqrt[4]{2000}$

CATEGORY 5

ALGEBRA

JAN, 1992

1. _____

2. _____

3. _____

1. WHAT IS THE SOLUTION SET FOR THE FOLLOWING INEQUALITY IF x IS A MEMBER OF THE SET OF INTEGERS?

$$\left|\frac{2}{x}\right| \geq 1$$

2. IF $x < 0$ THEN WHAT IS THE VALUE OF

$$\frac{-x}{|x|}$$

3. If $\frac{3}{2x-2} = \frac{1}{2}$ AND $\frac{2-y}{2} = \frac{2y+8}{4}$

THEN EVALUATE $(x-y)^2$