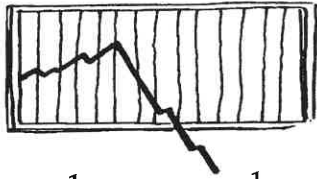
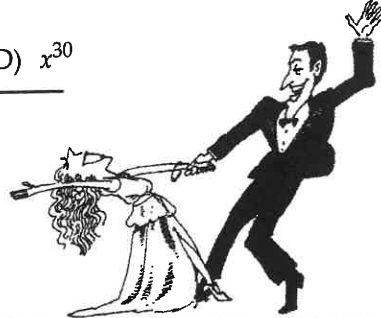
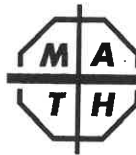


22. $\sqrt{x^{64}} \div \sqrt{x^4} =$ A) $x^4$ B) $x^6$ C) $x^{16}$ D) $x^{30}$	22.
23. The number of times that I danced with a star is $(x+3)^2 - (x-3)^2$ . If $x$ is an integer greater than 3, how many times did I dance with a star? A) 0   B) $3x$ C) $12x$ D) 18	23.
24. If $x > 0$ and $x^2 + x^2 + x^2 + x^2 = x^4$ , then $x^4 + x^4 + x^4 + x^4$ must equal A) $x^8$ B) $4x^6$ C) $6x^4$ D) $8x^3$	24.
25. The sum of the coefficients of the 4-term expansion of $(x+y)^3$ is A) 8   B) 6   C) 4   D) 3	25.
26. How many factors of $10^5$ are squares of integers? A) 4   B) 9   C) 16   D) 25	26.
27. The graph of ? crosses the $x$ -axis in 2 different points. A) $y = x^2 - 64$ B) $y = x^2$ C) $y = x^2 + 10x + 25$ D) $y = x^2 - 24x + 144$	27.
28. If line $\ell$ has slope $\frac{1}{1 + \frac{1}{x}}$ , what is the slope of any line that is perpendicular to line $\ell$ ? A) $-x$ B) $-\frac{x}{x+1}$ C) $-\frac{x+1}{x}$ D) $-\frac{1}{x+1}$	28.
29. I added $10^{2006}$ and $10^{2007}$ . Their sum is a ?-digit number. A) 2007   B) 2008   C) 4013   D) 4015	29.
30. If $x+y = 6$ and $xy = 4$ , then $x^2 + y^2 =$ A) 20   B) 28   C) 32   D) 36	30.



The end of the contest **A**



## 2006-2007 Annual Algebra Course 1 Contest


Spring, 2007


### Instructions

# A


- Time** You will have only 30 minutes working time for this contest. You might be *unable* to finish all 30 questions in the time allowed.
- Scores** Please remember that *this is a contest, not a test*—and there is no “passing” or “failing” score. Few students score as high as 24 points (80% correct). Students with half that, 12 points, *deserve commendation!*
- Format and Point Value** This is a multiple-choice contest. Each answer is an A, B, C, or D. Write each answer in the *Answer Column* to the right of each question. A correct answer is worth 1 point. Unanswered questions get no credit. You **may** use a calculator.



12.	The slopes of 2 parallel lines can have a product of $\frac{1}{4}$ and a sum of	A) $\frac{1}{16}$ B) $\frac{1}{4}$ C) $\frac{1}{2}$ D) 1
13.	The number of condiments on my sandwich equals the number of composite factors of $30 = 2 \times 3 \times 5$ . That number is	A) 3 B) 4 C) 6 D) 7
14.	For every negative value of $x$ , $ x-2  =$	A) $ x +2$ B) $ x -2$ C) $2- x $ D) $x+2$
15.	$\frac{1}{2}$ different integers satisfy $(x^2-4)(x^2-16)(x^2-20)(x^2-36) = 0$ .	A) 3 B) 4 C) 6 D) 8
16.	If both $(1,3)$ and $(6,3)$ lie on the line $y = mx+b$ , then $mb =$	A) 6 B) 5 C) 3 D) 0
17.	Which cannot be written as a sum of the squares of two integers?	A) 17 B) 18 C) 19 D) 20
18.	If $x = 1000$ , then 0.5% of $x =$	A) 0.5 B) 5 C) 50 D) 500
19.	The Cafeteria sign is a rectangle whose width is $x^2-5x-6$ . If the sign's length is $\frac{x^2-2x-3}{1}$ , its area is	A) 2 B) $\frac{x+1}{x-2}$ C) $\frac{x-3}{x-6}$ D) $\frac{2x+3}{5x+6}$
		
20.	How many different negative integers satisfy $x^2 < 2007$ ?	A) 44 B) 45 C) 88 D) 89
21.	$\frac{1}{2}$ is not the product of two binomials with integer coefficients.	A) $x^2+2xy+y^2$ B) $x^2-2xy+y^2$ C) $x^2-2xy-y^2$ D) $x^2-y^2$

Go on to the next page  **A**

1.	$(3+6)^2 = 3^2+6^2+?$	A) 0 B) 9 C) 18 D) 36
2.	When $x = 2007$ , $2(x+0) + 0(x+7) =$	A) 2 B) 2007 C) 4007 D) 4014
3.	On a treadmill, I was able to compute that $(-2)(-3)(-4)(-5) = (-3)(-4)(?)$ .	A) -20 B) -10 C) 10 D) 20
4.	If $\frac{b}{a} = -2$ , then $2b =$	A) $-a$ B) $-4a$ C) $a$ D) $4a$
5.	If $x+1 = y$ , then $x^2+2x+1 =$	A) $2y+1$ B) $y^2$ C) $y^2+1$ D) $y^2+2x$
6.	In which interval does $x^2$ attain its least value?	A) $-3 < x < -1$ B) $-2 < x < 1$ C) $0 < x < 1$ D) $1 < x < 2$
7.	$10x^2-5x+(-3x)-(-2x^2) =$	A) $12x^2-8x$ B) $12x^2-2x$ C) $8x^2-8x$ D) $8x^2-2x$
8.	In a 2 hour parade, 40% of the drummers passed me in the 1st hour. If 45 drummers passed me in the 2nd hour, then the total number of drummers in the parade was	A) 63 B) 70 C) 72 D) 75
9.	Whenever $x+10$ is odd, $x+5$ is always	A) odd B) even C) prime D) positive
10.	What is the product of the roots of $(x-2)(x-3) = 0$ ?	A) 0 B) -5 C) -6 D) 6
11.	What is the greatest common factor of $x^2+2x+1$ and $x^2+3x+2$ ?	A) 2 B) $x^2$ C) $x+1$ D) $x+2$

Go on to the next page  **A**