2005 Hoover High School Mathematics Tournament 7th Grade Written Examination

1. A triangle has angles in the ratio 2:3:4. What is the measure of the smallest angle in the triangle?

a)	20	b)	40	c)	10	d)	9	e)N	ΟΤΑ		
2.	Evaluate:		.1 + _ .3	<u>.2</u> +	<u>.4</u> .5 + .6						
a)	$\frac{33}{7}$	b) [`]	$\frac{10}{11}$	c)	73 110	d)	<u>293</u> 730	e)N	ΟΤΑ		
3.	$3. 4201_5 + 3123_4 = ?_{10}$										
a)	770	b)	7324	c)	814	d)	1621	e)N	ΟΤΑ		
4.	What are the odds of rolling 3 even numbers with 3 fair die?										
a)	$\frac{1}{8}$	b)	$\frac{7}{8}$	c)	$\frac{1}{7}$	d)	<u>6</u> 7	e)N	ота		
5.	5. 10% of the students in Mrs. Entrekin's class fail the math exam. If 45 students pass the exam, how many students are in the class?										
a)	55	b)	120	c)	50	d)	49	e)N	ΙΟΤΑ		
6.	6. Bob earned \$2 after his first week at the carwash. He earned twice as much the 2 nd wee The third week he earned twice as much as he did in the second week. If the pattern of earnings continue, what is Bob's average weekly earnings after six weeks?										
a)	\$64	b)	\$11	c)	\$21	d)	\$66	e)N	IOTA		
7.	Evaluate:	4.2	$\overline{9} + 3.\overline{3} - 6.\overline{7} = ?$								
a)	<u>89</u> 99	b)	$\frac{28}{33}$	c)	<u>89</u> 100	d)	<u>29</u> 99	e)N	IOTA		

8. Find the sum of the units digits of
$$407^{92}$$
 and 14^{12} .
a) 11 b) 15 c) 5 d) 7 oNOTA
9. A farmer has 20 animals. He only has ducks and dogs. If there are 46 total legs, how
many ducks are their?
a) 14 b) 6 c) 17 d) 3 e)NOTA
10. Find the length of the longest fishing rod that will fit inside a box that is 3 feet long.
2 feet wide, and 4 feet tall.
a) $\sqrt{29}$ ft b) $2\sqrt{6}$ ft c) $5\sqrt{2}$ ft d) 5 ft e)NOTA
11. Find the ratio of the area of the triangle to the area
 $y = \frac{x}{y+z}$ b) $\frac{x}{yz}$ c) $\frac{xyz}{2}$ d) $\frac{x}{2(y+z)}$ c)NOTA
12. Poul leaves his house and walks to school using the following route. He goes north 14 miles
there east 6 miles then south 6 miles. He is able to leave school and head in a straight line
home. What was Paul's total round trip walking distance?
a) 26 miles b) 36 miles c) 42 miles d) 50 miles e)NOTA
13. What is the measure of the acute angle made by the minute and hour hand at 3:30 m?
a) 15^6 b) 90^0 c) 60^0 d) 75^6 e)NOTA
14. If $a \# b = 2ab - a^2$, find $2y \# (y \# 3y)$
a) $20y^3 - 4y^2$ b) $16y$ c) $16y - 10$ d) $5y^3 - 4y^2$ e)NOTA
15. Solve for x: $(3^4)(27)(81) = 3^{21}$
a) 14 b) 12 c) 10 d) 1 e)NOTA

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16.		Find the are	a of a	square th	at has a diag	ona	l with ler	ngth 16 u	nit	ïs.	1	
a)	250	6units ²	b)	18 units	2 c)	64	4 units ²	C	i)	128 units ²	e	NOTA
17.		In 33 years	Jennife	er will be	2 ½ times a	s ol	d as she i	s now. I	Ho	w old will she	be in	10 years?
a)	32		b)	43	c)	12	2	C	l)	99	e)NOTA
1 8.		The square	root of	the cube	root of a nu	mb	er is .25.	What is	th	e number?		
a)	.12	5	b)	<u>1</u> 4096	c)	.0	025	(1)	$\frac{1}{125}$	e	NOTA
19.	19. The gauge on a gas tank reads ³ / ₄ full. When you put 6 more gallons into the tank, reads 5/6 full. How many total gallons does the tank hold?										tank, t	he gauge
a)	36		b)	24	c)	72	2	(d)	80	e)NOTA
20. spe Ho	ends wn	Paul's wife two thirds on nuch money	is goir of the n did Pa	ng shoppi noney sho ul's wife	ing. She spe e has left on have at the s	nds foo start	one third d. Finall	l of her r y she spe	noi end	ney on clothes ls the remaining	s. She ng \$28	then on CDs.
a)	\$ 12	26	b)	\$84	c)	\$	63		d)	\$42	e)NOTA
21.		What is the shaded bull (Assume th	e probal Iseye o ne dart :	bility of l n the dart must hit t	hitting the board? the board)					XX	x	
a)	$\frac{\pi}{4}$	b)	$\frac{1}{9}$	c) -	$\frac{1}{3}$ d)	$\frac{4}{9}$)	e)NOTA	4			
22		Jill can fini together, he	ish a pr ow long	oject in 2 g would i	hrs. Alex c t take the tw	an f o of	finish the f them to	same pr finish or	oje ne j	ect in 3 hrs. W project?	Vorking	5
a)	1h	r. 12 min.	b)	2hrs. 30	min. c)	5]	hrs.		d)	1hr. 50 min.	()NOTA

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23.	A triangle has x-axis, how far	vert r fro	tices $A(2,3)$, $B($ om the point $(1,1)$	6 , 9) is	9), C(1,12). If the new point C'?	the t	riangle is reflected	over the		
a) 12	units	b)	13 units	c)	$2\sqrt{3}$ units	d)	$\sqrt{13}$ units	e)NOTA		
24.	Using $F(x) = 0$	(3x) ² and $G(x) = x$	x ² –	4. Find the value	of:	G(a)+F(2a)			
a) 16a	$a^2 - 16$	b)	$9a^2 - 4$	c)	$37a^2 - 4$	d)	$4a^2 + 16$	e)NOTA		
25. Find the surface area of a cube that has a volume of $\sqrt{8}$ units ³ .										
a) 6 u	nits ²	b)	$6\sqrt{8}$ units ²	c)	8 units ²	d)	12 units ²	e)NOTA		
Tie Br	eakers:									
TB1	Find a positive number that is $1\frac{1}{2}$ more than its reciprocal.									
TB2	What is the diameter of a 4 unit tall cylinder that has a volume of 25π units ² ?									
TB3	3 Find the value of the third root of 64?									

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