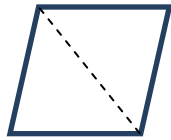
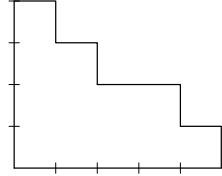
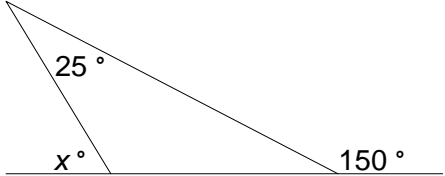


1. If $a \times b = 30$ and $c \times d = 4$. What is $a \times b \times c \times d$?	1. 120
2. Half of a third of a number is 1,801. What is the number?	2. 10,806
3. Solve for x : $20x = 16$. a. $x = -\frac{4}{5}$ b. $x = \frac{4}{5}$ c. $x = -4$ d. $x = 320$	3. a <input type="checkbox"/> b <input checked="" type="checkbox"/> c <input type="checkbox"/> d <input type="checkbox"/>
4. Calculate the value of s such that $8s - 6 = 0$. a. $s = \frac{3}{4}$ b. $s = -2$ c. $s = 2$ d. $s = -\frac{3}{4}$	4. a <input checked="" type="checkbox"/> b <input type="checkbox"/> c <input type="checkbox"/> d <input type="checkbox"/>
5. Solve for n : $\frac{n^2 - 5n}{n - 6} = 0$. a. $n = 0, 5, 6$ b. $n = 0$ c. $n = 0, 5$ d. $n = 0, 6$	5. a <input type="checkbox"/> b <input type="checkbox"/> c <input checked="" type="checkbox"/> d <input type="checkbox"/>
6. Find the value of $\frac{1}{5 + \frac{1}{5 + \frac{1}{5}}}$	6. $\frac{26}{135}$
7. Evaluate: $-1^{20} + (-1)^{21}$ a. -2 b. -1 c. 0 d. 1	7. a <input checked="" type="checkbox"/> b <input type="checkbox"/> c <input type="checkbox"/> d <input type="checkbox"/>
8. Compute: $\frac{17}{32} - \frac{4}{25}$. a. $-\frac{68}{57}$ b. $-\frac{297}{800}$ c. $\frac{13}{57}$ d. $\frac{297}{800}$	8. a <input type="checkbox"/> b <input type="checkbox"/> c <input type="checkbox"/> d <input checked="" type="checkbox"/>
9. Each equilateral triangle shown has a perimeter of 6. What is the perimeter of the parallelogram? 	9. a <input type="checkbox"/> b <input checked="" type="checkbox"/> c <input type="checkbox"/> d <input type="checkbox"/>
10. In the figure below, assume all the angles that appear to be right angles are actually right angles. What is the perimeter of the figure? 	10. a <input type="checkbox"/> b <input type="checkbox"/> c <input type="checkbox"/> d <input checked="" type="checkbox"/>
11. Solve for x . 	11. a <input type="checkbox"/> b <input type="checkbox"/> c <input checked="" type="checkbox"/> d <input type="checkbox"/>

12. Pi's Pizza Palace sells a 6-inch diameter pizza for \$6, an 8-inch diameter pizza for \$8, and a 10-inch diameter pizza for \$10. Which is the best buy? a. the 6 inch pie b. the 8 inch pie c. the 10 inch pie	12. a <input type="checkbox"/> b <input type="checkbox"/> c <input checked="" type="checkbox"/>
13. k is an unknown number between -4 and -5. Which is the largest number? a. $-k + 5$ b. $\frac{k + 4}{2}$ c. $\frac{k + 2}{2}$	13. a <input checked="" type="checkbox"/> b <input type="checkbox"/> c <input type="checkbox"/>
14. Which of the following numbers is <u>NOT</u> a factor of $3 \times 5 \times 7$? a. 15 b. 21 c. 30 d. 35	14. a <input type="checkbox"/> b <input type="checkbox"/> c <input checked="" type="checkbox"/> d <input type="checkbox"/>
15. Three of these expressions are equivalent. Which one is <u>NOT</u> ? a. $x - y + z$ b. $x + z - y$ c. $-y - (z - x)$ d. $x - (y - z)$	15. a <input type="checkbox"/> b <input type="checkbox"/> c <input checked="" type="checkbox"/> d <input type="checkbox"/>
16. What is $4a^4$ times $a^2 - a + 1$? a. $4a^6 - 4a^5 + 4a^4$ b. $4a^4 + a^2 - a + 1$ c. $-4a^4 + a^2 - a + 1$ d. $4a^4 + 2(a^2 - a + 1)$	16. a <input checked="" type="checkbox"/> b <input type="checkbox"/> c <input type="checkbox"/> d <input type="checkbox"/>
17. Simplify $\sqrt{5}(4\sqrt{7} + 3\sqrt{11})$. a. $3\sqrt{11} + 4\sqrt{35}$ b. $4\sqrt{35} + 3\sqrt{55}$ c. $4\sqrt{7} + 3\sqrt{55}$ d. $33\sqrt{5} + 4\sqrt{35}$	17. a <input type="checkbox"/> b <input checked="" type="checkbox"/> c <input type="checkbox"/> d <input type="checkbox"/>
18. Express $0.\overline{45}$ as a common fraction. a. $\frac{45}{100}$ b. $\frac{5}{11}$ c. 45 d. $\frac{45}{99}$	18. a <input type="checkbox"/> b <input checked="" type="checkbox"/> c <input type="checkbox"/> d <input type="checkbox"/>
19. For the inequality $3 - x > 5$, is $x < 0$ a solution to the inequality? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	19. Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
20. Solve for x : $-\frac{8x}{3} - \frac{9}{8} = 0$. a. $\frac{91}{24}$ b. $-\frac{64}{27}$ c. $-\frac{27}{64}$ d. $\frac{27}{64}$	20. a <input type="checkbox"/> b <input type="checkbox"/> c <input checked="" type="checkbox"/> d <input type="checkbox"/>
21. If $a! = a(a-1)(a-2)\cdots(2)(1)$, find the value of $\frac{(n+1)!}{(n-1)!}$ when $n = 100$.	21. 10,100
22. Simplify $\left(\frac{3a^2b}{2bc^2}\right)^2 \left(\frac{4b^2c^2}{9ab^2c}\right)^3$	22. $\frac{16a}{81c}$
23. Solve for x : $\frac{2}{5} = \frac{3}{x-7}$ a. 13 b. $\frac{29}{2}$ c. 15 d. $\frac{1}{2}$	23. a <input type="checkbox"/> b <input checked="" type="checkbox"/> c <input type="checkbox"/> d <input type="checkbox"/>

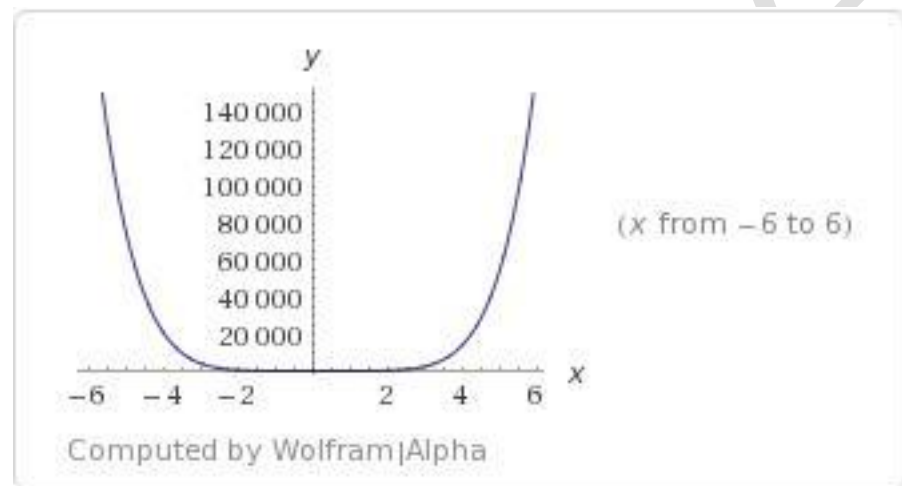
**12th Annual
Oklahoma School of Science and Mathematics
Middle School Mathematics: An Awesome Contest
March 8, 2014**



24. What percent decrease occurs when a stock drops from \$6.40 per share to \$4.80? Round to the nearest whole percent. a. 16% b. 25% c. 33% d. 75%	24. a b c d <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
25. At 6:00 AM Sam leaves home driving 40 km per hour. Sally leaves 2 hours later driving 50 km per hour. What time will it be when Sally catches up with Sam? Specify AM or PM.	25. 4:00 PM
26. Johanna has an 18" x 18" x 12" gift box that needs to be mailed in a 24" x 24" x 24" shipping carton. Packing peanuts come in 1-cubic foot bags. How many whole bags of packing peanuts does Johanna need to buy to ship the gift box?	26. 6 bags
27. In the sequence 2, 5, 8, 11, 14, . . . each number is three more than its successor. What is the 100th number in the sequence? a. 100 b. 299 c. 300 d. 302	27. a b c d <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
28. $a+b=200$ and $a-b=100$. What is $2 \times b$?	28. 100
29. If $(x-3)^2 + (y-2)^2 = 0$ find $x^2 + y^3$ a. 13 b. $\frac{29}{2}$ c. 17 d. $\frac{1}{2}$	29. a b c d <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
30. If $300 \leq a \leq 400$ and $500 \leq b \leq 1200$, then the largest value of the quotient $\frac{b}{a}$ is	30. 4
31. If an arc of 45° on circle A has the same length as an arc of 36° on circle B, what is the ratio of the area of circle A to the area of circle B? a. $\frac{36}{45}$ b. $\frac{4}{5}$ c. $\frac{16}{25}$ d. $\frac{1}{2}$	31. a b c d <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>

SPECIAL: The graph below is a plot of an expression in one of the test problems. Which problem (circle one)? NOTE: The axis labels are set to a standard x-y coordinate system.

- a. Problem 5: $f(x) = \frac{x^2 - 5x}{x - 6}$
- b. Problem 16: $f(x) = 4x^4(x^2 - x + 1)$
- c. Problem 29: $(x - 3)^2 + (y - 2)^2 = 0$



NAME: (Please print) _____	AGE _____	DATE OF BIRTH mm / dd / yy ___ / ___ / ___	GRADE LEVEL (Circle one) 7 8
Email: _____			
SCORE (For official use) P1 _____ P2 _____ P3 _____ Total: _____ TB: Y N	GENDER (Circle one) M F	HOME ADDRESS (Please print) Street _____ City _____ Zip _____ School _____	
Parents' names: (Please print)			

Directions: Use the scratch paper provided to do your work. Calculators are allowed, but not necessary. Write the answer(s) to each question in the box to the right of the question. Units are given in plural form even if the singular form is correct. All fractions should be in simplest form, $\frac{3}{2}$ not $1\frac{1}{2}$.

This is a 31-question, 1-hour contest. The special question on the last page may be used to break ties. Each question is worth one point. Your score will be the number of correct answers (excluding the tie-breaker). There is no partial credit. There is no penalty for wrong answers. Please continue working or reworking problems until time is called.

Do Not Open or Turn Over Until Instructed To Do So