

Alg. I Team

Answer for MIAMI SPRINGS SENIOR HIGH SCHOOL MATHEMATICS INVITATIONAL on APRIL 16, 1994

Q	Answer	Q	Answer	Q	Answer				
1	149 (245-96)	6	63	11	Y				
2	$A = \frac{1+\sqrt{5}}{2}$ $B = \frac{1+\sqrt{5}}{2}$ $C = \frac{10}{9}$ $D = 1$ ANSWER = $\frac{9}{10}$	7	0 (one of factors must be even and since 2 is the only even factor there is no answer)	12	$y^4 - 2y^2$ or $y^2(y^2 - 2)$				
3	$-81\frac{1}{4}\%$	8	<table border="1" style="display: inline-table; vertical-align: top;"> <tr> <td>A</td> <td>X</td> <td>I</td> <td>S</td> </tr> </table> EXONENT EQUATION QUADRATIC ABSCISSA	A	X	I	S	13	4
A	X	I	S						
4	$\frac{1}{4}$	9	$\frac{24}{5}$	14	2048				
5	-12	10	$\frac{26 \cdot 25 \cdot 24}{52 \cdot 51 \cdot 50}$ $\frac{4 \cdot 3 \cdot 2}{52 \cdot 51 \cdot 50}$ $\frac{4}{52}$ C=52 ANSWER=50	15	$\frac{2}{7}$				

Algebra I Team.

1. 245 ← smallest
 $\frac{-96}{149}$ ← largest

2. $x = \sqrt{1 + \sqrt{1 + \sqrt{1 + \dots}}}$

$x = \sqrt{1+x}$

$x^2 = 1+x$

$x^2 - x - 1 = 0$

$x = 1 \pm \sqrt{5}$

$x = 1 + \sqrt{5}$

b) $x = 1 + \frac{1}{x}$

$x^2 = x+1$

$x^2 - x - 1 = 0$

c) $1 \frac{1}{4}$

d) 1

$\frac{AD}{BC} = \frac{1}{\frac{10}{9}} = \frac{9}{10}$

$16 \sqrt[4]{\frac{-81}{16}}$

$-81 \frac{1}{4} \%$

3. $\begin{matrix} 16 \\ 24 \\ 36 \\ 18 \\ 27 \\ 36 \\ 18 \\ 9 \\ 3 \end{matrix}$ $16 \rightarrow 3$
 $-\frac{13}{16}$

4. $M = 5m$
 $m = M - 2 = 7(m-2)$
 $M - 2 = 7m - 14$

$M = 5m$ $m+2=8$
 $M = 7m - 12$ $5m+2=32$

$5m = 7m - 12$ $\frac{1}{32} = \frac{1}{4}$
 $-2m = -12$
 $m = 6$

5. $f(x) = 3x^3 - 6x^2 - 15x + 18$
 $x^3 - 2x^2 - 5x + 6$
 $2 \quad -6$
 -12

6. $7^1 = 7$
 $7^2 = 7 \cdot 7 = 49$
 $7^3 = 7 \cdot 9 = 63$
 $7^4 = 7 \cdot 3 = 21$
 $7 \cdot 1 = 7$

Numbers cycle 7-9-3-1

$7^{22} = 7^{32+1}$
 $(7^4)^8 \cdot 7^1$
 $= 1 \cdot 7$
 $= 7$

7^{130}
 $7^{32 \cdot 4 + 2}$ $7 \cdot 9 = 63$
 $(7^4)^{32} \cdot 7^2$
 $1^{32} \cdot 49 = 9$

7. One factor must be even and since 2 is the only even prime

1. exponent equation quadratic ab Scissa \Rightarrow **Axis**

9. $(3, -1)$ and $(-5, 1)$

A) $\frac{2}{-3} = -\frac{1}{4}$

B) $0 = 3x + 5$
 $3x = -5$
 $x = -5/3$

C) $5x + 2y = 5$
 $2y = 5$
 $y = 5/2$

D) $(-1, 2)$ $(2, 6)$
 $3^2 + 4^2$

$\sqrt{9+16} = 5$

$\frac{4 \cdot 3 \cdot 2}{1 \cdot 5} = \frac{24}{5}$

10. Half of deck is red $\frac{26}{52}$

$A = \frac{26}{52} \cdot \frac{25}{51} \cdot \frac{24}{50}$

B = The are four two's

$\frac{4}{52} \cdot \frac{3}{51} \cdot \frac{2}{50}$

$C = \frac{4}{52}$

$\frac{26}{52} \cdot \frac{25}{51} \cdot \frac{24}{50} \cdot \frac{4}{52} \cdot \frac{3}{51} \cdot \frac{2}{50} \cdot \frac{1}{52} \cdot \frac{1}{51} \cdot \frac{1}{50}$

$25 \cdot 2 = 50$

11. 2 3 5 7 11 13 17 19 23

$100 = 25 \cdot 4$

X

12. $y^* = y^2 - 1$

$(y^*)^* = (y^2 - 1)^* = (y^2 - 1)^2 - 1$

$y^4 - 2y^2 + 1 - 1$

$y^4 - 2y^2$ or $y^2(y^2 - 2)$

13.

14. $2^{11} = 2048$

15. $2/7$ (cancel)