algebra 2 team answers
version 3.1 3/22/94

1	3		9	1
2	$\left(\pm\frac{\sqrt{21}}{3},\pm\frac{2\sqrt{15}}{3}\right)$		10	2310
3	$2\sqrt{21}$		11	2
4	70		12	-61236
5	$\frac{59}{143}$		13	1 A=141i B=i C=1 D=12
6	$1,\frac{1}{3},-2$		14	86 A=54 B=4 C=16 D=3
7	$(56+4\sqrt{10})+(70+\sqrt{10})i$ $A=\sqrt{10}$ $B=16(3+4i)$ $C=8+6i$ $D=(3+i)\sqrt{10}$		15	16
8	$\frac{125}{144}$ $A=1$ $B=\frac{\sqrt{5}}{3}$ $C=\frac{5}{4}$			

Algebra II Team Solutions

1) $2\cdot\left(\left((2^4)^{1/2}\right)^{-1/2}\right)^{1/2}\cdot 3\cdot\left(\left((2^3)^{1/2}\right)\right)^{1/3}$ over $2^{3/4}$

$\frac{2\cdot 2^{-1/2}\cdot 3\cdot 2^{1/4}}{2^{3/4}} = \frac{2\cdot 3\cdot 2^{1/4}}{2^{1/2}\cdot 2^{3/4}}$

$\frac{\cancel{2^{3/4}}\cdot 3}{\cancel{2^{3/4}}} = \boxed{3}$

2) $-4(x^2+y^2) = 9(-4)$

$16x^2+4y^2=64$

$12x^2 = 28$

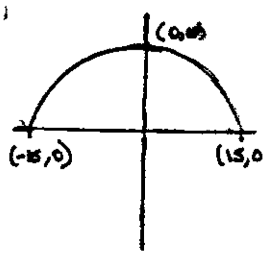
$x^2 = \frac{7}{3}$

$x = \pm\frac{\sqrt{21}}{3}$

$\left(\frac{7}{3}\right)^2+y^2=9$

$y = \pm\frac{2\sqrt{15}}{3}$

$\boxed{\left(\pm\frac{\sqrt{21}}{3}, \frac{2\sqrt{15}}{3}\right) \text{ and } \left(\pm\frac{\sqrt{21}}{3}, \frac{-2\sqrt{15}}{3}\right)}$

3) 

$\frac{x^2}{225}+\frac{y^2}{100}=1$

use $(6, y)$:

$\frac{6^2}{225}+\frac{y^2}{100}=1$

$\frac{36}{225}+\frac{y^2}{100}=1$

$y^2=84$

$y=\pm\sqrt{84}$

use $+\sqrt{84}$ or $\boxed{2\sqrt{21}}$

4) $\frac{(\cancel{\log 11})(3\cancel{\log 6})(8\cancel{\log 2})(7\cancel{\log 3})(\cancel{\log 7})(5\cancel{\log 5})}{(\cancel{\log 7})(3\cancel{\log 5})(\cancel{\log 3})(\cancel{\log 11})(\cancel{\log 6})(4\cancel{\log 2})}$

$\frac{\cancel{3}\cdot\cancel{8}^{2}\cdot 7\cdot 5}{\cancel{3}\cdot\cancel{4}} = \boxed{70}$

5) P(at least 3) = P(3 W) + P(4 W) + P(5 W)

$\frac{\binom{6}{3}\cdot\binom{7}{2}}{\binom{13}{5}} + \frac{\binom{6}{4}\binom{7}{1}}{\binom{13}{5}} + \frac{\binom{6}{5}\binom{7}{0}}{\binom{13}{5}}$

$\frac{420}{1287}+\frac{105}{1287}+\frac{6}{1287} = \frac{531}{1287}$ or $\boxed{\frac{59}{143}}$

6) Find all zeros

possible $\pm 1, 1/3, 2/3, 2, 4/3, 4$

rational root theorem

+1 so $x-1\,\overline{)\,6x^3+4x^2-14x+4}$

1	6	4	-14	4
		6	10	-4
	6	10	-4	0

$(x-1)(6x^2+10x-4)$

$(x-1)(2x+4)(3x-1)$

$\boxed{(1,-2,1/3)}$

7) $z=2+2i$ $\quad w=1-3i$

$A=|z+w|$

$|3+-1i| = \sqrt{3^2+(-1)^2}$

$=\sqrt{10}$

$B=\overline{8-4i} = (8+4i)^2 = (4(2+i))^2 = 16(3+4i)$

$C=(\overline{3-i}) = (3+i)^2 = 8+6i$

$D=(3+i)(\sqrt{10})$

$\sqrt{10}+48+64i+8+6i+3\sqrt{10}+\sqrt{10}\,i$

$\boxed{(56+4\sqrt{10})+(70+\sqrt{10})i}$

8) A = parabola's eccentricity = 1 *

B = ellipse $\frac{B}{A}$

$\frac{(x-6)^2}{36}+\frac{(y+4)^2}{16}=1$ *

$a=6 \quad c^2=36-16$

$c^2=20$

$\frac{c}{a}=\frac{2\sqrt5}{6} \quad c=\sqrt{20}=2\sqrt5$

$\frac{\sqrt5}{3}$ *

C = hyperbola

$\frac{(x-2)^2}{64}-\frac{(y+1)^2}{36}=1$

$a=8$

$c^2=64+36$

$c^2=100$

$c=10$

$\frac{10}{8}=\frac{5}{4}$ *

$\left(1\cdot\frac{\sqrt5}{3}\cdot\frac{5}{4}\right)^2$ *

$\boxed{\frac{125}{144}}$

15)

9) $A\cdot A^{-1}\begin{bmatrix}1\\0\\0\end{bmatrix}$

det of $\begin{vmatrix}1&0&0\\0&1&0\\0&0&1\end{vmatrix}$

10) $\sum_{k=1}^{9}k^3+\sum_{k=2}^{9}k$

$\left(\frac{n(n+1)}{2}\right)^2+\left(\frac{n(n\ldots}{6}\right.$

$\left(\frac{9(10)}{2}\right)^2$

$(45)^2+\frac{9(10)(19)}{6}$

$2025+285 = \boxed{2310}$

11) You can solve by using matrices or notice that:

$A+B+C+D=2$ 3rd row

$\boxed{2}$

12) constant will be 6TH term

$n=10$, $r=5$ $\quad \binom{10}{5}(6x)^5\left(\frac{-1}{2x}\right)^5$

$252\cdot 7776\cdot -\frac{1}{32}$

$\boxed{-61236}$

13) $A=(\sqrt{72}+\sqrt{-72})^2=(6\sqrt2+6i\sqrt2)^2$

$(6\sqrt2+6i\sqrt2)^2=72+144i-72=14\ldots$

$B=(i^{765})^{1/3}(i^{764})^{1/2}=i^{(255+382)}=i^{63\ldots}$

$C=\cfrac{12}{11+\cfrac{12}{11+\cfrac{12}{11+\dots}}}$ $\quad x=\frac{12}{11+x}$

$11x+x^2=12=c$

$(x-1)(x+12)=0$

$x=1 \quad \cancel{x=-12}$

$D=\sqrt{\frac{A}{B}}\div C = \sqrt{\frac{144i}{i}}\div 1 = 12$

$\frac{\sqrt{D}-\sqrt3}{\sqrt3}=\frac{\sqrt{12}-\sqrt3}{\sqrt3}=\frac{2\sqrt3}{\sqrt3}=\frac{\sqrt3}{\sqrt3}=\boxed{1}$

14) $A=\frac{58+56+51+\dots+49}{8}=54$

$B=\sqrt{\frac{\sum_{i=1}^{n}(x_i-\bar{x})^2}{n}}=\sqrt{\frac{(58-54)^2+\dots+(49-54)^2}{8}}$

$\sqrt{\frac{128}{8}}$ or $\sqrt{16}=4$

C = (standard deviation)^2 = $4^2=16$

$D=61-49=12$

$54+4+16+12=\boxed{86}$