Simplify:

i^{47132}

$\sqrt{-17}$

$(5+i)(3-i)$

$|4+i|$

$\frac{3}{2-i}$

$(3+i)^2$

i^{731}

$\sqrt{-18}$

$|2+5i|$

$(3+i)(7-i)$

$\frac{4+3i}{4-3i}$

$|4-i|$

i^{71677}

$\sqrt{-40}$

$\frac{7}{3-2i} =$

$3i(i-2) =$

$\sqrt{-32}$

$\frac{4+2i}{3-i}$

Solve:

$8+2(x-5)=14$

$3(2x+1)=6x-7$

$x^2-6x+10=0$

$5x^2-4x=33$

$5(x-1)+2x=20$

$2x^2+3x+8=0$

$2x^2+5x+3=0$

$x^2+2x+7=0$

$2x^2+x=16$

$x^2+4x+13=0$

Divide by long or synthetic division:

$x-3\overline{)2x^3-x^2+7x+2}$

$\frac{x^3-64}{x-4}$

List the PRR, Graph & Solve:

$2x^3-10x^2+9x-4=0$

$x^3-7x^2+14x-8=0$

$x^3+8x^2+11x-20=0$

$x^4-x^3-x^2-x-2=0$

$6x^3+17x^2-5x-6=0$

$x^3+9x^2+26x+24=0$

Find the sum & product of the roots:

$2x^2+5x-7=0$

$x^2+6x-8=0$

$x^2+7x+2=0$

$3x^2-5x+3=0$

Write the quadratic equations with roots of:

$\{4-i, \_\_\_\_\}$

$\left\{3, \frac{-1}{2}\right\}$

$\{3-\sqrt{5}, \_\_\_\_\_\}$

$\{5-2i, \_\_\_\_\}$

$\{9, 9\}$

$\{7+\sqrt{3}, \_\_\_\_\}$

$\{3, -8\}$

$\left\{\frac{3}{2}, \frac{1}{4}\right\}$

Evaluate Exactly:

$81^{\frac{1}{4}} =$ $\quad 16^{\frac{-3}{2}} =$ $\quad 9^{\frac{-3}{2}} =$

$27^{\frac{-1}{3}} =$ $\quad 100^{\frac{-1}{2}} =$ $\quad 8^{\frac{-5}{3}} =$

$125^{-2/3} =$ $\quad 64^{2/3} =$ $\quad 25^{-1/2} =$

Find x by hand:

$\log_x 125 = 3$ $\quad \log_7 49 = x$ $\quad \log_2 x = 8$

$\log_9 27 = x$ $\quad \log_5 \frac{1}{25} = x$ $\quad \log_6 x = -2$

$\log x = -3$ $\quad \log_{4x} 9 = 2$ $\quad \log_3 (2x+1) = 4$

$\log_{\frac{1}{8}} 4 = x$ $\quad \log_2 16 = 2x - 1$ $\quad \log_x 64 = \frac{2}{3}$

$\log x + \log(x-1) = \log 30$ $\quad \log_{\frac{1}{8}} 16 = x$

$\log_3 x = 3$ $\log_x 64 = 3$ $\log_6 \frac{1}{6} = x$

$\log 0.001 = x$ $27^{2x+1} = \frac{1}{9}$ $\log_8 \frac{1}{4} = x$

$6^{x+1} = 216$ $\log_5 \frac{1}{25} = x$ $\log_x 32 = 5$

$\log_7 1 = x$ $9^{x-1} = \frac{1}{27}$ $\log_x 81 = \frac{4}{3}$

Write as a single logarithm:

$2\log 3 + 3\log 5 =$ $3\log 2 - \log 9 =$ $\frac{1}{4}\log 16 =$

$2\log 3 + 3\log 2 =$ $5\log 2 - 2\log 5 =$ $2\log 4 =$

$\log 7 + \log 3 =$ $\log 20 - \log 10 =$ $\ln x + \ln y - \ln x =$

$2\log 7 =$ $\frac{1}{2}\log_7 9 =$ $3\ln x - 2\ln y - \ln x =$

Solve (to the nearest hundredth):

$5^x = 13$

$8^x = 213$

$3^x = 17$

$5^{3x-2} = 49$

$7^x = 13$

$13^x = 5$

$11^{x+2} = 18$

$6^{2x-5} = 123$

$7^{x-3} = 12$

$4^{3x-1} = 15$

$3^{2-x} = 11$

$9^{3x+2} = 17$

Find the determinant: (first by hand and then check on the calculator)

$\begin{pmatrix} 3 & 1 \\ 7 & -2 \end{pmatrix}$ $\begin{pmatrix} -2 & -5 \\ 1 & 2 \end{pmatrix}$ $\begin{pmatrix} 1 & 4 & 2 \\ 3 & 0 & 5 \\ 1 & 0 & 2 \end{pmatrix}$

$\begin{pmatrix} -4 & 1 & 5 \\ 3 & 2 & 0 \\ -1 & -1 & -5 \end{pmatrix}$ $\begin{pmatrix} 1 & 3 & 2 \\ 0 & 1 & 4 \\ 2 & 1 & -2 \end{pmatrix}$

Solve for *x* & *y* using RREF on calc:

$3x+2y=7$
$5x-y=4$

$2x+5y=9$
$5x-2y=7$

$2x+4y+z=0$
$3x-y+2z=-1$
$x+6y-3z=7$

$5x+3y=8$
$7x-4y=10$

$2x+3y=-14$
$x-y=-2$

$x+2y-3z=11$
$2x+y-2z=9$
$4x+3y+z=16$

Solve:

$15-\frac{2}{3}x>-5$

$x^2-10x+25\geq 0$

$x^2-3x\geq 10$

$2x^2+7x+3<0$

$2x^2+9x+4\geq 0$

$x^2+6x+9<0$

$|2x-5|=7$

$3|x-5|=6$

$|x+2|<7$

$|2x-5|>7$

$|x+3|\leq 6$

$|3-2x|>11$

Write the equation of the circle with:

Center: (7,5) & radius = 9

Center: $(0,-3)$ & radius = $2\sqrt{3}$

Find the center & radius, and graph:

$(x+1)^2+(y-3)^2=16$

$(x-3)^2+y^2=36$

$x^2+y^2+2x+4y-4=0$

$x^2+y^2-12x=0$

$x^2+y^2-6x+4y+12=0$

$x^2+y^2+10x-2y-10=0$

Key

Alg II – Summer Packet

Simplify:

i^{47132}

1

$\sqrt{-17}$

$i\sqrt{17}$

$(5+i)(3-i)$

$16-2i$

$|4+i|$

$\sqrt{17}$

$\frac{3}{2-i}$

$\frac{6+3i}{5}$

$(3+i)^2$

$8+6i$

i^{731}

$-i$

$\sqrt{-18}$

$3i\sqrt{2}$

$|2+5i|$

$\sqrt{29}$

$(3+i)(7-i)$

$22+4i$

$\frac{4+3i}{4-3i}$

$\frac{7+24i}{25}$

$|4-i|$

$\sqrt{17}$

i^{71677}

i

$\sqrt{-40}$

$2i\sqrt{10}$

$\frac{7}{3-2i} =$

$\frac{21+14i}{13}$

$3i(i-2) =$

$-3-6i$

$\sqrt{-32}$

$4i\sqrt{2}$

$\frac{4+2i}{3-i}$

$1+i$

Solve:

$8+2(x-5)=14$

$x=8$

$3(2x+1)=6x-7$

No Sol.

$x^2-6x+10=0$

$x=3\pm i$

$5x^2-4x=33$

$x=3,\ \frac{-11}{5}$

$5(x-1)+2x=20$

$x=\frac{25}{7}$

$2x^2+3x+8=0$

$x=\frac{-3\pm i\sqrt{55}}{4}$

$2x^2+5x+3=0$

$x=-1,\ -\frac{3}{2}$

$x^2+2x+7=0$

$-1\pm i\sqrt{6}$

$2x^2+x=16$

$x=\frac{-1\pm\sqrt{129}}{4}$

$x^2+4x+13=0$

$-2\pm 3i$

Divide by long or synthetic division:

$x-3\overline{)2x^3-x^2+7x+2}$

$2x^2+5x+22+\frac{68}{x-3}$

$\frac{x^3-64}{x-4}$

$x^2+4x+16$

List the PRR, Graph & Solve:

$2x^3-10x^2+9x-4=0$

$x=4,\ \frac{1\pm i}{2}$

$x^3-7x^2+14x-8=0$

$x=1,2,4$

$x^3+8x^2+11x-20=0$

$x=1,-4,-5$

$x^4-x^3-x^2-x-2=0$

$x=-1,2,\pm i$

$6x^3+17x^2-5x-6=0$

$x=-3,\frac{2}{3},\frac{-1}{2}$

$x^3+9x^2+26x+24=0$

$x=-2,-3,-4$

Find the sum & product of the roots:

$2x^2+5x-7=0$

$S=\frac{-5}{2}$ $P=-7/2$

$x^2+6x-8=0$

$S=-6$ $P=-8$

$x^2+7x+2=0$

$S=-7$ $P=2$

$3x^2-5x+3=0$

$S=5/3$ $P=1$

Write the quadratic equations with roots of:

$\{4-i, \_\_\_\_\}$

$x^2-8x+17=0$

$\left\{3, \frac{-1}{2}\right\}$

$2x^2-5x-3=0$

$\{3-\sqrt{5}, \_\_\_\_\_\}$

$x^2-6x+4=0$

$\{5-2i, \_\_\_\_\}$

$x^2-10x+29=0$

$\{9,9\}$

$x^2-18x+81=0$

$\{7+\sqrt{3}, \_\_\_\_\}$

$x^2-14x+46=0$

$\{3,-8\}$

$x^2+5x-24=0$

$\left\{\frac{3}{2}, \frac{1}{4}\right\}$

$8x^2-14x+3=0$

Evaluate Exactly:

$81^{\frac{1}{4}} =$ 3

$16^{\frac{-3}{2}} =$ $\frac{1}{64}$

$9^{\frac{-3}{2}} =$ $\frac{1}{27}$

$27^{\frac{-1}{3}} =$ $-\frac{1}{3}$

$100^{\frac{-1}{2}} =$ $\frac{1}{10}$

$8^{\frac{-5}{3}} =$ $\frac{1}{32}$

$125^{-2/3} =$ $\frac{1}{25}$

$64^{2/3} =$ 16

$25^{-1/2} =$ $\frac{1}{5}$

Find *x* by hand:

$\log_x 125 = 3$

$x = 5$

$\log_7 49 = x$

$x = 2$

$\log_2 x = 8$

$x = 256$

$\log_9 27 = x$

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

$\log_5 \frac{1}{25} = x$

$x = -2$

$\log_6 x = -2$

$x = \frac{1}{36}$

$\log x = -3$

$x = \frac{1}{1000}$

$\log_{4x} 9 = 2$

$x = \frac{3}{4}$

$\log_3 (2x+1) = 4$

$x = 40$

$\log_{\frac{1}{8}} 4 = x$

$x = -2/3$

$\log_2 16 = 2x - 1$

$x = 5/2$

$\log_x 64 = \frac{2}{3}$

$x = 512$

$\log x + \log(x-1) = \log 30$

$x = 6$

$\log_{\frac{1}{8}} 16 = x$

$x = -4/3$

$\log_3 x = 3$

$x = 27$

$\log_x 64 = 3$

$x = 4$

$\log_6 \frac{1}{6} = x$

$x = -1$

$\log 0.001 = x$

$x = -3$

$27^{2x+1} = \frac{1}{9}$

$x = -\frac{5}{6}$

$\log_8 \frac{1}{4} = x$

$x = -2/3$

$6^{x+1} = 216$

$x = 2$

$\log_5 \frac{1}{25} = x$

$x = -2$

$\log_x 32 = 5$

$x = 2$

$\log_7 1 = x$

$x = 0$

$9^{x-1} = \frac{1}{27}$

$x = -\frac{1}{2}$

$\log_x 81 = \frac{4}{3}$

$x = 27$

Write as a single logarithm:

$2\log 3 + 3\log 5 =$

$\log 1125$

$3\log 2 - \log 9 =$

$\log \frac{8}{9}$

$\frac{1}{4}\log 16 =$

$\log 2$

$2\log 3 + 3\log 2 =$

$\log 72$

$5\log 2 - 2\log 5 =$

$\log \frac{32}{25}$

$2\log 4 =$

$\log 16$

$\log 7 + \log 3 =$

$\log 21$

$\log 20 - \log 10 =$

$\log 2$

$\ln x + \ln y - \ln x =$

$\ln \frac{xy}{z}$

$2\log 7 =$

$\log 49$

$\frac{1}{2}\log_7 9 =$

$\log_7 3$

$3\ln x - 2\ln y - \ln x =$

$\ln \frac{x^3}{y^2 x} = \ln \frac{x^2}{y^2}$

Solve (to the nearest hundredth):

$5^x = 13$

$x = 1.59$

$8^x = 213$

$x = 2.58$

$3^x = 17$

$x = 2.58$

$5^{3x-2} = 49$

$x = 1.47$

$7^x = 13$

$x = 1.32$

$13^x = 5$

$x = 0.63$

$11^{x+2} = 18$

$x = -0.79$

$6^{2x-5} = 123$

$x = 3.84$

$7^{x-3} = 12$

$x = 4.28$

$4^{3x-1} = 15$

$x = 0.98$

$3^{2-x} = 11$

$x = -0.18$

$9^{3x+2} = 17$

$x = -0.24$

Find the determinant: (first by hand and then check on the calculator)

$\begin{pmatrix} 3 & 1 \\ 7 & -2 \end{pmatrix}$

-13

$\begin{pmatrix} -2 & -5 \\ 1 & 2 \end{pmatrix}$

1

$\begin{pmatrix} 1 & 4 & 2 \\ 3 & 0 & 5 \\ 1 & 0 & 2 \end{pmatrix}$

-4

$\begin{pmatrix} -4 & 1 & 5 \\ 3 & 2 & 0 \\ -1 & -1 & -5 \end{pmatrix}$

50

$\begin{pmatrix} 1 & 3 & 2 \\ 0 & 1 & 4 \\ 2 & 1 & -2 \end{pmatrix}$

14

Solve for *x* & *y* using RREF on calc:

$3x+2y=7$
$5x-y=4$

$\left(\frac{15}{13}, \frac{23}{13}\right)$

$2x+5y=9$
$5x-2y=7$

$\left(\frac{53}{29}, \frac{31}{29}\right)$

$2x+4y+z=0$
$3x-y+2z=-1$
$x+6y-3z=7$

$(1, 0, -2)$

$5x+3y=8$
$7x-4y=10$

$\left(\frac{62}{41}, \frac{6}{41}\right)$

$2x+3y=-14$
$x-y=-2$

$(-4, -2)$

$x+2y-3z=11$
$2x+y-2z=9$
$4x+3y+z=16$

$(2, 3, -1)$

Solve:

$15-\frac{2}{3}x>-5$

$x<30$

$x^2-10x+25\geq 0$

all real #'s

$x^2-3x\geq 10$

$x\leq -2$ or $x\geq 5$

$2x^2+7x+3<0$

$-3<x<-\frac{1}{2}$

$2x^2+9x+4\geq 0$

$x\leq -4$ or $x\geq -\frac{1}{2}$

$x^2+6x+9<0$

No Sol.

$|2x-5|=7$

$x=6,-1$

$3|x-5|=6$

$x=7,3$

$|x+2|<7$

$-9<x<5$

$|2x-5|>7$

$x>6$ or $x<-1$

$|x+3|\leq 6$

$-9\leq x\leq 3$

$|3-2x|>11$

$x<-4$ or $x>7$

Write the equation of the circle with:

Center: (7,5) & radius = 9

$(x-7)^2+(y-5)^2=81$

Center: $(0,-3)$ & radius = $2\sqrt{3}$

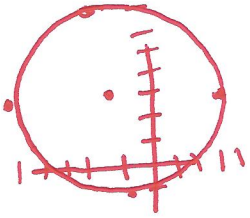
$x^2+(y+3)^2=12$

Find the center & radius, and graph:

$(x+1)^2+(y-3)^2=16$

$C=(-1,3)$

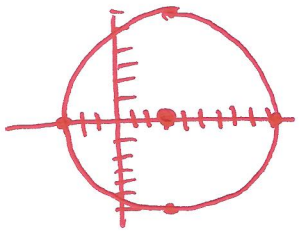
$r=4$



$(x-3)^2+y^2=36$

$C=(3,0)$

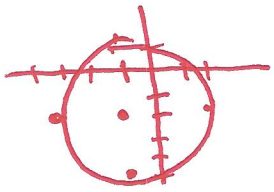
$r=6$



$x^2+y^2+2x+4y-4=0$

$(x+1)^2+(y+2)^2=9$

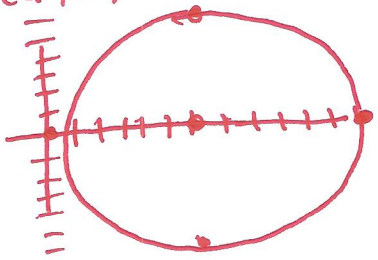
$C=(-1,-2)$ $r=3$



$x^2+y^2-12x=0$

$(x-6)^2+y^2=36$

$C=(6,0)$ $r=6$

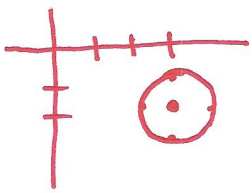


$x^2+y^2-6x+4y+12=0$

$(x-3)^2+(y+2)^2=1$

$C=(3,-2)$

$r=1$



$x^2+y^2+10x-2y-10=0$

$(x+5)^2+(y-1)^2=36$

$C=(-5,1)$

$r=6$