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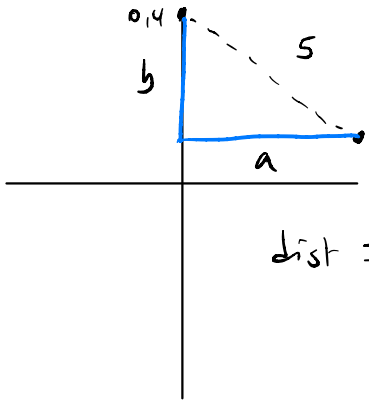
3-5-22 Math 74C

30)

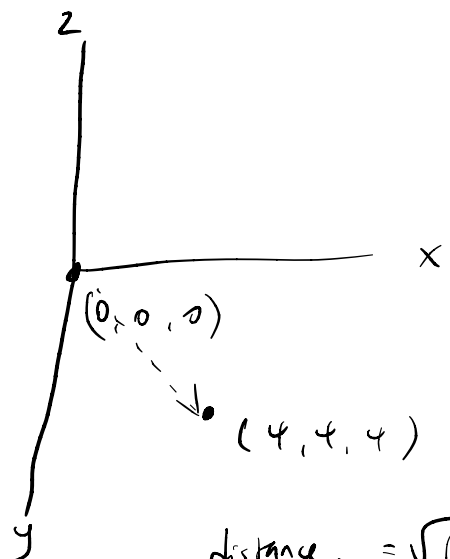


Any distance

make a right triangle

$$dist = \sqrt{(x_2-x_1)^2 + (y_2-y_1)^2}$$

$$c = \sqrt{a^2 + b^2}$$



$$distance_{3D} = \sqrt{(x_2-x_1)^2 + (y_2-y_1)^2 + (z_2-z_1)^2}$$

50) $f(x) = \dfrac{x-3}{x^2-2x-3}$ which x values are we missing?

$\{x \mid x \neq -1 \text{ and } x \neq 3\}$

$f(x) = \dfrac{x-3}{(x-3)(x+1)} = \dfrac{1}{x+1}$, $x \neq 3$

36) $100\% \Rightarrow 360^\circ$

bananas are what percent? $\frac{5}{18}$

$\frac{15}{90} = \frac{1}{6}$ $\quad \frac{5}{6} \div 3 = \frac{5}{18}$

How to convert $\frac{5}{18} \times 360^\circ = 100^\circ$

51)

S S S _ _ _ _

0-9 0-9 0-9 0-9

$1 \cdot 1 \cdot 1 \cdot 10 \cdot 10 \cdot 10 \cdot 10$

10^4

Multiplication principle

4 hats
2 shirts
3 pants

How many outfits w/ shirt + pants

For each of 2 shirts, there are 3 choices

$2 \cdot 3 = 6$.

what about with hats?

$6 \cdot 4 = 24$

53) $\ln = \log_e$ $\quad e \approx 2.71828$

$\log = \log_{10}$ $\quad = \lim_{n\to\infty} \left(1+\frac{1}{n}\right)^n$ = continuous interest

At what x do $y=7$ and $y = \ln(x-2)+3$

At what x do $y=0$ and x^2-2x+1 intersect?

$0 = x^2-2x+1$

1) $7 = \ln(x-2)+3$

$4 = \ln_e(x-2)$

2) $e^4 = x-2$

3) $e^4+2 = x$

$\log_a b = c$

$a^c = b$

57) 500 banners

125 yd blue needed = 13 bolts = 130 yd

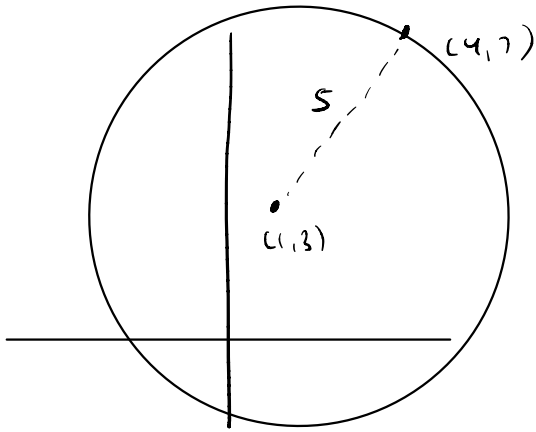
187.5 yd white needed = 16 bolts = 192 yd

130 yd − 125 = 5 yd = 20 banners extra

192 yd − 187.5 = 4.5 yd = 12 banners extra

520 banners

52)



Try not to get confused by wording

60) rws cols rws cols
$(m,n) \times (n,p)$
A B

columns of first = rows of second
for matrix multiplication

K because $n \neq k$

59) eliminate B, C bc wrong root location } at most 60 seconds

Graph up to 2 times

multiplicity of roots

48)

$4^2 + 5^2 - 7^2$

$16 + 25 \quad 49$

$41 < 49$

↓

obtuse <

Equilateral triangle

$3^2 + 2^2 \quad 3^2$

$18 > 9$

↓

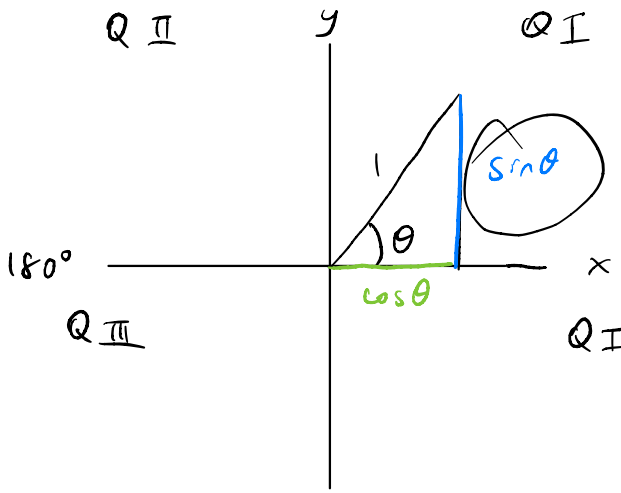
acute >

42) Must be $-\sin(-x^\circ) = -1$

or $\sin(-x^\circ) = 1$

Answer is G $\sin(-x)$ bc $\sin(-x) = -\sin(x)$

$\cos(-x) = \cos(x)$



$\sin^2\theta + \cos^2\theta = 1$

$x^2 + y^2 = r^2$

$\sin\theta = \frac{opp}{hyp} = \frac{opp}{1}$

odd function $\sin(-\theta) = -\sin(\theta)$

even function $\cos(-\theta) = \cos(\theta)$

$\sin(180^\circ - \theta) = \sin\theta$

$\cos(180^\circ - \theta) = -\cos(\theta)$

odd $f(-x) = -f(x)$

even $f(-x) = f(x)$