[redacted]

2-27 Math 71E 2013 December

44, 45, 46, 46, 51

46) $a^2 b = 1$ solve for a

$$\left(\frac{a}{b}\right)^x = \frac{a^x}{b^x}$$

$$a^2 = \frac{1}{b}$$

$$a = \sqrt{\frac{1}{b}} = \left(\frac{1}{b}\right)^{1/2} = \frac{\sqrt{1}}{\sqrt{b}} = \frac{1}{\sqrt{b}}$$

$$(ab)^x = a^x b^x$$

$$\underbrace{(ab)\,(ab)\,(ab)\,\cdots\,(ab)}_{x \text{ of these}}$$

Proof $\Rightarrow$ Then there are x a's and x b's $= a^x b^x$

$$\left(\frac{a}{b}\right)^x \quad \left(a \cdot \frac{1}{b}\right)^x = a^x \cdot \left(\frac{1}{b}\right)^x = \frac{a^x}{b^x}$$

46) $x = 1$ $\quad \frac{7-x}{2} = 3$

Both are ints ✓

$7 - x$ is even iff x is odd (odd + odd = even)

If $7-x$ is even, then $\frac{7-x}{2}$ is an integer

51)

$$V = V_0 (1-r)^t$$

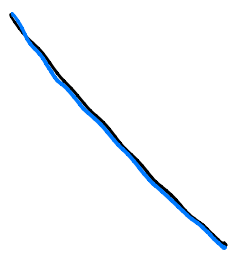
$$\frac{V}{V_0} = (1-r)^t$$ No need for log

$$\sqrt[t]{\frac{V}{V_0}} = 1-r$$

$$-\sqrt[t]{\frac{V}{V_0}} = r-1$$

$$r = 1 - \sqrt[t]{\frac{V}{V_0}}$$

59)



$\times 3/2$ $\quad 8x - 6y = 12$

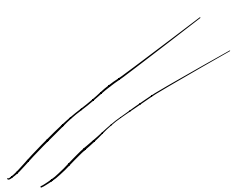
$\quad 12x - ay = 18$ $\times 3/2$

These 2 equations need to be equal

$a = 6 \cdot 3/2 = 9$

System: solution is # intersections

1 solution



0 solutions

(same line)

∞ solutions

44) C $\quad (x+3)^2 - x^2 = x^2 + 6x + 9 - x^2 = 6x + 9$

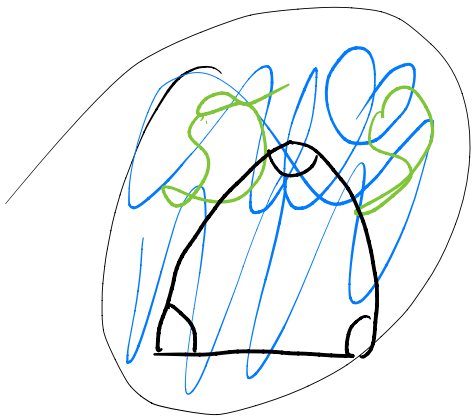
37) $2(120) + 2(80) = 240 + 160 = 400$

D

Angle sum of pentagon is 540°

Sum of interior angles of polygon $= 180^\circ(n-2)$

n is # sides



On a sphere, triangle's angle sum > 180