

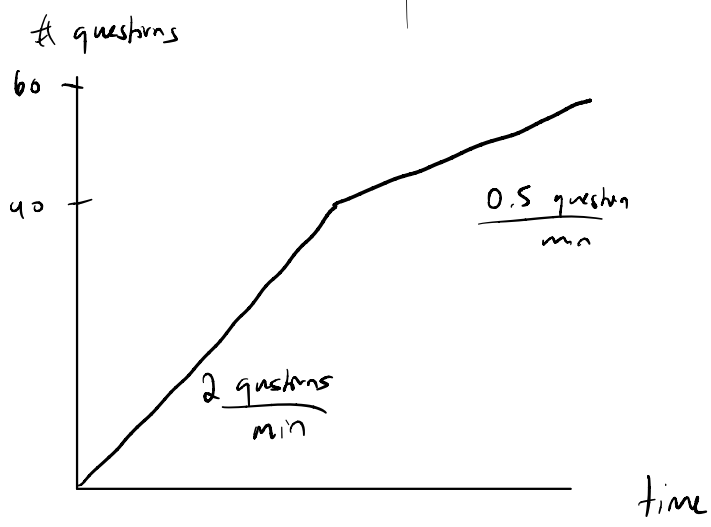
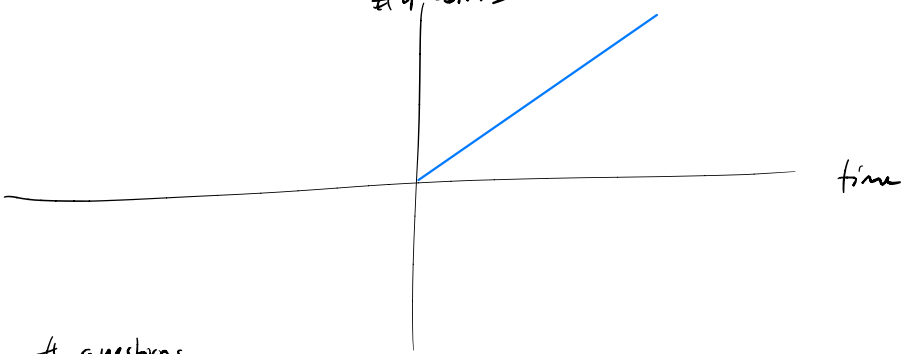


2-19-22 Tutoring

First 40
 $\frac{1 \text{ question}}{\text{min}}$

Last 20
 $\frac{1 \text{ question}}{\text{min}}$
questions

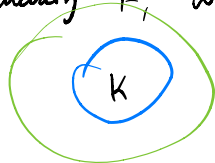
$\frac{60 \text{ questions}}{60 \text{ min}}$



expected value
mean, average

22)

1) After checking F_1 which answer do you check?



check outliers

$$2) \frac{f_2 + f_8 + 91 + f_3 + \boxed{196}}{6} = 90\%$$

points

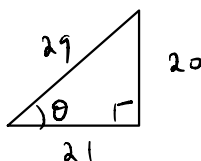
$$\begin{array}{r} 4 \times 100 \\ + 1 \times 200 \\ \hline 600 \end{array} \text{ pts}$$

Read carefully

30)

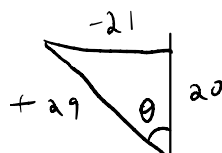
$90^\circ < \theta < 180^\circ$ \nearrow $\cos \theta$ will be negative

$0 < \theta < 90^\circ$



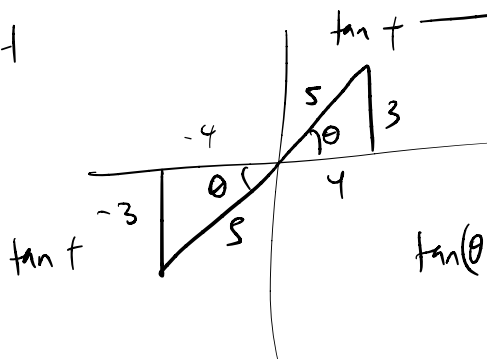
What's $\cos \theta$?

$$\frac{21}{29}$$



wrong orientation, ignore

1-1



$$\tan(\theta) = \frac{3}{4}$$

$$\tan = \frac{\text{opp}}{\text{adj}}$$

\sin
 \cos

2π
 2π

\tan period of π

37) Guess & check good approach, saves time

46)

$$\log_s x = -2$$

base result
 power

$$\begin{aligned} 5^2 &= 25 &> \div 5 \\ 5^1 &= 5 &> \div 5 \\ 5^0 &= 1 &> \div 5 \\ 5^{-1} &= \frac{1}{5} &> \div 5 \\ 5^{-2} &= \frac{1}{25} &> \div 5 \end{aligned}$$

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

5^2 "multiply 5 two times" $5 \cdot 5$

5^{-2} "do the inverse of multiplying 5 two times" $\frac{1}{5 \cdot 5}$

49)

$$c^2 = a^2 + b^2 - 2ab \cos C$$

$$c^2 - a^2 - b^2 = -2ab \cos C$$

hint: angle $\rightarrow C$

$$- \frac{c^2 - a^2 - b^2}{2ab} = \cos C$$

$$\cos^{-1} \left(- \frac{c^2 - a^2 - b^2}{2ab} \right) = \cos^{-1}(\cos(C))$$

$$\boxed{\cos^{-1} \left(- \frac{c^2 - a^2 - b^2}{2ab} \right)} = C$$

3

$$c = 39$$

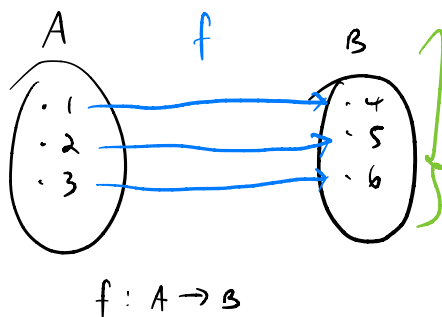
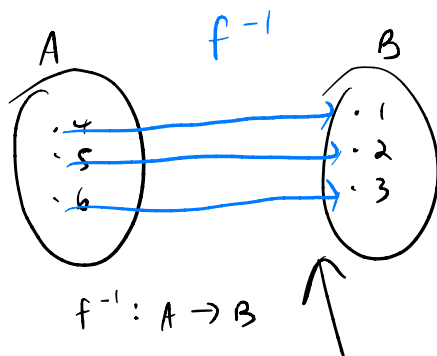
Apply something to C
Then to the opposite

LAW OF COSINES

Figure out what c and C are
You are solving for one of them

NEVER a or b

Inverse
function



82)

recursive formulas are not explicit formulas
usually have to plug in several times

$$n=1$$

$$s_1 = 3$$

$$n=2$$

$$s_2 = 2s_{2-1} + n + 1 = 2s_1 + 2 + 1 = 2(3) + 2 + 1 = 9$$

$$n=3$$

$$s_3 = 22$$

$$s_n = s_n + 1 \quad \text{red circle}$$

$$n=4$$

$$s_4 = \boxed{49}$$

Fibonacci

$$s_1 = \boxed{1 = 2} = 3 = 4$$

84)

$\{1, 2, 2, 3, 3, 3, 4, 4, 4, 4\}$

$$s_1 = s_1 + 1 = 2$$

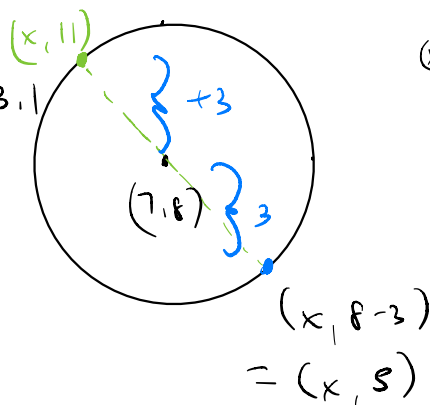
$$EX = \frac{1 \cdot 1 + 2 \cdot 2 + 3 \cdot 3 + 4 \cdot 4}{10} = 3$$

88)

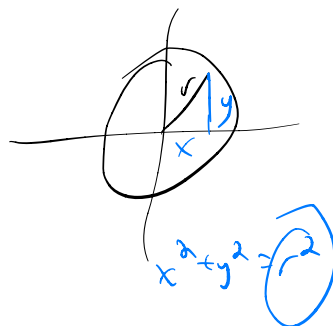
Remember: for geometry questions, always draw a diagram

Center: $(7, 8)$

Radius: $\sqrt{10} \approx 3.1$



$$(x-h)^2 + (y-k)^2 = r^2$$



Want:

60)

Must be 3 solutions (may be imaginary)

Send complex solution graph later

$$(x-1)^2$$

$$x=1$$

$$(x-1)(x-1)$$

$$x=1$$

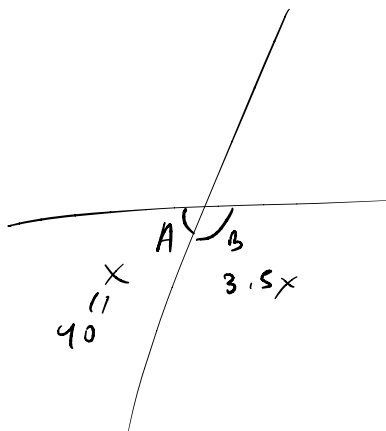
$$x=1$$

Any polynomial with highest power n (of degree n) has n solutions

(may be hidden)

(maybe imaginary)

51)



$$x + 3.5x = 180$$

$$4.5x = 180$$

$$x = 40$$

Always one or two small steps from correct answer, attempt every question and draw diagram / do small example

Try to keep track of questions you took too long on

Fibonacci
sequence

1, 1, 2, 3, 5, 8, 13, 21, 34

$$f_1 = 1$$

$$f_2 = 1$$

$$f_n = f_{n-1} + f_{n-2}$$