

## Math 2160 - Homework Assignment

To laurence.kirby@baruch.cuny.edu

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Sent: Mon 10/25/10 3:19 PM

To: laurence.kirby@baruch.cuny.edu

Dear Prof. Kirby,

You asked the class to calculate the Hamiltonian Circuits for a K-5 graph consisting of vertices A,B,C,D,E using the Brute Force Algorithm.

A K-5 graph contains  $4!$  or  $4 \times 3 \times 2 \times 1$  or 24 Hamiltonian circuits.

These are the circuits:

1. ABCDEA
2. ABCEDA
3. ACBEDA
4. ACBDEA
5. ADBCEA
6. ADBECA
7. BACDEB
8. BACEDB
9. BCAEDB
10. BCADEB
11. BDACEB
12. BDAECB
13. CABDEC
14. CABEDC
15. CBADEC
16. CBAEDC
17. CDABEC
18. CDAEBC
19. DABCED
20. DABECD
21. DBAECD
22. DBABED
23. DCAEBD
24. DCABED

Is this correct?

$$(i+5)(2i-3) = ?$$

$$2i^2 + 2i - 15 = ?$$

$$2(-1) + 2i - 15 = ?$$

$$-2 + 2i - 15 = -17 + 2i$$

$$-17 + 2i$$

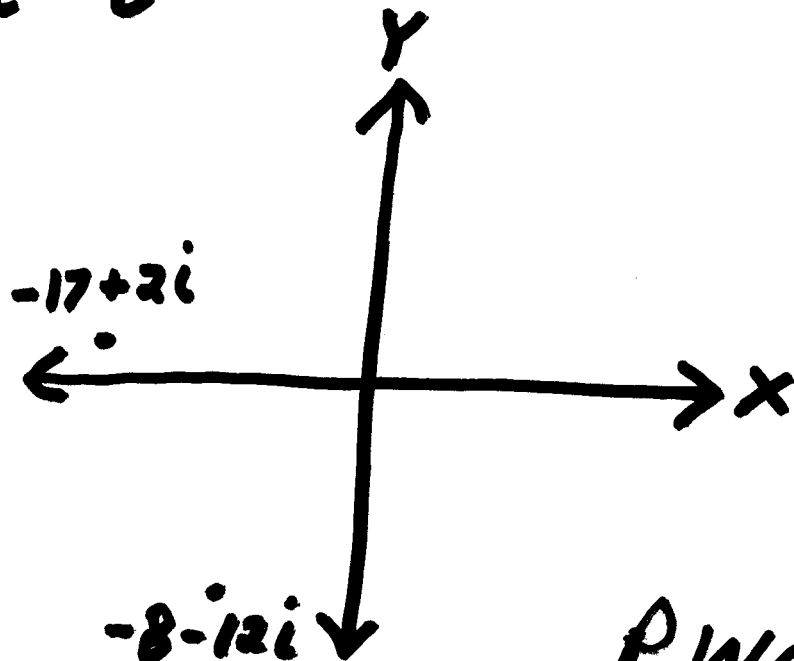
$$(3i+2)(i^2-3) = ?$$

$$3i^3 + 2i^2 - 9i - 6 = ?$$

$$3(-1)i + 2(-1) - 9i - 6 = ?$$

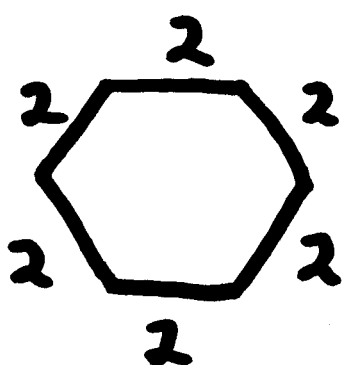
$$-3i - 2 - 9i - 6 = -8 - 12i$$

$$-8 - 12i$$



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SEED:



	NUMBER OF SIDES	LENGTH OF SIDE	PERIMETER
STEP 0	6	2	12
STEP 1	42	.5	21
STEP 2	294	.125	36.75
STEP 3	2,058	.03125	64.313
STEP 4	14,406	.00781	112.547
STEP N	$6(7)^N$	$2\left(\frac{1}{4}\right)^N$	$12\left(\frac{7}{4}\right)^N$
STEP 100		$1.244603056 \times 10^{-60}$	
		$1.940685906 \times 10^{55}$	
			PERIMETER = $2.415383608 \times 10^{25}$

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# QUESTION 23.b.

$$1. \Phi^6 = 8\Phi + 5$$

$$2. \Phi^6 = \frac{8(1+\sqrt{5})}{2} + 5$$

$$3. \Phi^6 = \frac{8}{2} + \frac{8\sqrt{5}}{2} + 5$$

$$4. \Phi^6 = \frac{8\sqrt{5}}{2} + \frac{18}{2}$$

$$5. \Phi^6 = 4\sqrt{5} + 9$$

$$a = 4$$

$$b = 9$$

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# QUESTION 23.a.

$$1. \Phi^6 = \Phi^5 \cdot \Phi$$

$$2. \Phi^6 = (5\Phi + 3) \cdot \Phi$$

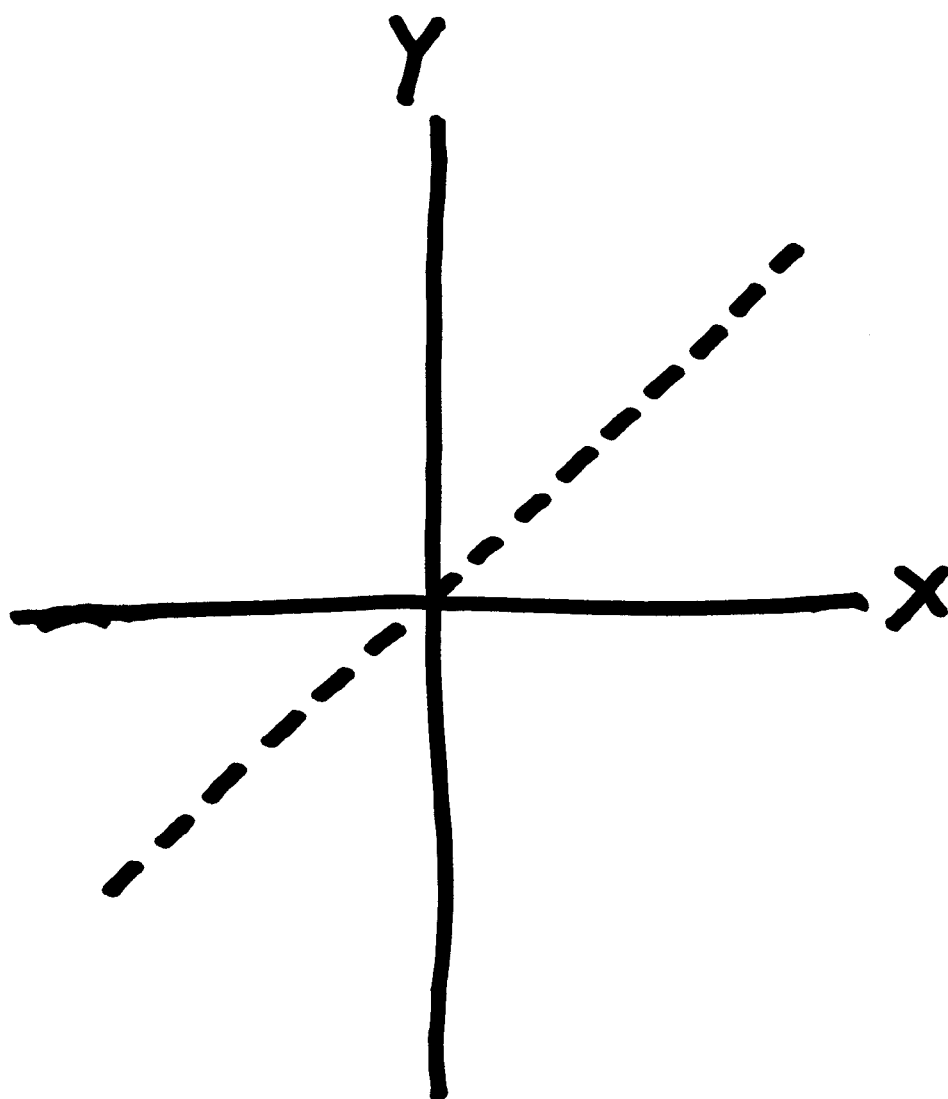
$$3. \Phi^6 = 5\Phi^2 + 3\Phi$$

$$4. \Phi^6 = 5(\Phi + 1) + 3\Phi$$

$$5. \Phi^6 = 5\Phi + 5 + 3\Phi$$

$$6. \Phi^6 = 8\Phi + 5$$

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$$f(x) = x$$

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