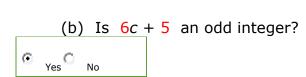
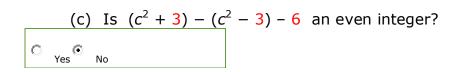
Assignment 1 Due Date: October 15; 2022

Name:	I.D.:
Total Marks:	
 Write the statements in symbolic form using the represent component statements. Let h = "John is he wise." 	
(a) John is healthy and wealthy but not wise.	
C h∨w∧~s (h∨w)∧~s (h∧w)∧~s (h∨w)∨~s	(h ∧ w) V ~s
(b) John is not wealthy, but he is healthy and wise.	
• ~w V (h V s) C ~w A (h V s) C ~w A (h A s) C ~w A h V s	~w ∨ (h ∧ s)
(c) John is neither healthy, wealthy, nor wise.	
C ~w∨~h∧~s ~w∧~h∨~s • ~w∧~h∧~s ~(w∧h	n)
(d) John is neither wealthy nor wise, but he is he	ealthy.
	s) V h (~w \ ~s) V h
(e) John is wealthy, but he is not both healthy a	nd wise.

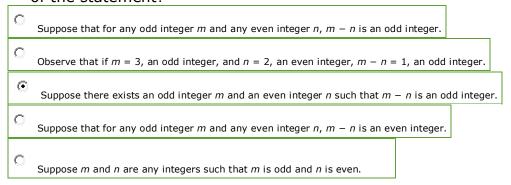
- 2. Assume that *c* is a particular integer.
- (a) Is -8c an even integer? Yes •

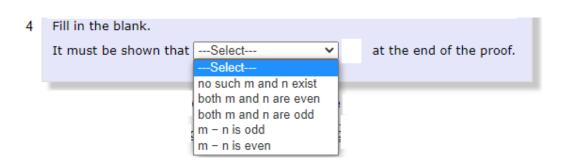
No





3. Consider the following statement. "The difference between any odd integer and any even integer is an odd integer". Which of the following could begin a direct proof of the statement?





5.	With an idea	a of where to start and where to finish, complete the next few steps that follow the first by filling in the blanks
	By definition	n, since m is an odd integer, there exists an $ r$ such that $ m = $.
	Similarly, by	definition, since n is an even integer, there exists an \square such that $n = \square$.
		statement to be proved deals with the difference $m-n$, use the above information to rewrite the difference. he mathematical expressions found for m and n into the equation. (Enter your answer in terms of r and s .)
	m - n =	
6.		ow to algebraically manipulate the expression on the right side of the equation to final goal. Finish the proof in essay form.
7.	Consider the	e following theorem.
		The sum of any even integer and any odd integer is odd.
	Only six sta	tements in the following scrambled list belong in the proof.
		By substitution, $m + n = 2t + 1$, where t is an integer.
		Let $m + n$ be any odd integer.
		So by definition of even, t is even.
		Let $t = r + s$. Then t is an integer because it is a sum of integers.
		By definition of even and odd, there are integers r and s such that $m = 2r$ and $n = 2s + 1$.
		Suppose m is any even integer and n is any odd integer.
		Hence, $m + n$ is twice an integer plus one. So by definition of odd, $m + n$ is odd.
		By substitution and algebra, $m + n = 2r + (2s + 1) = 2(r + s) + 1$.
		By definition of even and odd, there is an integer r such that $m=2r$ and $n=2r+1$.

Construct	the proof by choosing the appropriate statements from the list and putting them in the correct	order.
1.		
2.		
3.		
4.		
5.		
6		
8. Consid	ler the following theorem.	
	The product of any even integer and any odd integer is even.	
Here is	s a proof of the theorem with at least one incorrect step.	
	 Suppose m is any even integer and n is any odd integer. If m · n is even, then by definition of even there exists an integer r such that m · By definition of even and odd, there exist integers p and q such that m = 2p and Therefore, by substitution, the product m · n = (2p)(2q + 1) = 2r. But r is an integer by the assumption above. Thus m · n is two times an integer, so by definition of even, the product is even. 	
Identif	y the mistakes in the proof. (Select all that apply.)	
Step	1	
☐ Step	2	
Step	13	
Step	4	
Step	5	
Step	6	
9. Write t	the rational number 5.6073 as a ratio of two integers. (Simplify your answer completely	y.)

 Consider the expression below. Assume m is an 	ı inteaer.
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$$6m(3m + 24)$$

Complete the equality. (Simplify your answer completely. Enter an expression in the variable $\it m.$ If no expression exists, enter DNE.)

6m(3m + 24) = 9)
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Given that m is an integer, is 6m(3m + 24) divisible by 9?

0	Yes
0	No