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		nothat is used?
4)	You want to show using induction that a statement $A(n)$ holds for all n of the form $n=2^k$, with $k\in\mathbb{N}_0=\{0,1,2,3,\ldots\}$	
	Which of the following combinations of base case and induction step would form a valid proof?	Induction Explanation WY
	Select one or more: (a) Base case: A(1) holds.	
	Induction step: $A(n) \implies A(2n)$ for all integers $n \ge 1$.	
	b. Base case: A(0) holds.	
	Induction step: $A(2^k) \implies A(2^{k+1})$ for all integers $k \ge 1$.	
	c. Base case: A(1) holds.	
	Induction step: $A(2^k) \implies A(2^{k+1})$ for all integers $k \ge 1$.	
	(A) Base case: $A(1)$ holds	
	$\begin{array}{c} \text{Induction step: } A(2^k) \implies A(2^{k+1}) \text{ for all integers } k \geq 0. \\ \end{array} \\ \begin{array}{c} \text{more} \\ \text{convenient} \end{array}$	
	convenient	
		n h
2)	$\sum_{k=1}^n k^{0.3} \le O(n^{1.3})$?	$\sum_{i} i^{k} = \Theta(n^{k+1})$
	$\sum_{k=1}^{n} k^{0.3} = \Theta(n^{1.3}) \implies \leq O(n^{1.3})$ $k = 1 \qquad n \qquad n$ $railed: \sum_{k=1}^{n} k^{0.3} \leq \sum_{k=1}^{n} n^{0.3} = n \cdot n^{0.3} = n^{1.3}$	
(dat	$\sum 10^{3} < \sum 10^{3} = n \cdot n^{0.3} - n^{1.3}$	
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3)	Recall that $f = \Theta(g)$ if and only if $f \leq O(g)$ and $g \leq O(f)$. ————————————————————————————————————	
	Is it true that $n^2+n-1=\Theta(n^3-n^2)$?	
	$n^{2}+n-1 \leq O(n^{3}-n^{2})$ but $n^{3}-n^{2} \neq O(n^{2}+n-1)$	
		alternative:
		• If $\lim_{x \to \infty} \frac{f(n)}{f(n)} = C \in \mathbb{R}^+$, then $f = \Theta(q)$.
or	$\lim_{n \to \infty} \frac{n^2 + n - l}{2} = 0 \neq C \in \mathbb{R}^+$	• If $\lim_{n \to \infty} \frac{f(n)}{g(n)} = C \in \mathbb{R}^+$, then $f = \Theta(g)$.
or	$\lim_{\substack{n \to \infty \\ n \to \infty}} \frac{n^2 + n - l}{n^3 - n^2} = 0 \neq C \in \mathbb{R}^+$	• If $\lim_{n \to \infty} \frac{f(n)}{g(n)} = C \in \mathbb{R}^+$, then $f = \Theta(g)$.
or y)	$n \rightarrow \infty$ $n^3 - n^2$	• If $\lim_{n \to \infty} \frac{f(n)}{g(n)} = C \in \mathbb{R}^+$, then $f = \Theta(g)$.
ог Ц)	n • ∞ n 3 - n 2	
or y)	$n \rightarrow \infty$ $n 3 - n^2$ Consider the following pseudocode snippet: $i \leftarrow 1$	• If $\lim_{n\to\infty} \frac{f(n)}{g(n)} = C \in \mathbb{R}^+$, then $f = \Theta(g)$.
or U)	$n \rightarrow \infty$ $n 3 - n^2$ i Consider the following pseudocode snippet:	
or U)	$n \rightarrow \infty$ $n 3 - n^2$ i i Consider the following pseudocode snippet: Image: Consider the following pseudocode snippet: Image: Consider the following pseudocode snippet: $i \leftarrow 1$ Image: Consider the following pseudocode snippet: Image: Consider the following pseudocode snippet: $i \leftarrow 1$ Image: Consider the following pseudocode snippet: Image: Consider the following pseudocode snippet: $i \leftarrow 1$ Image: Consider the following pseudocode snippet: Image: Consider the following pseudocode snippet: $i \leftarrow 1$ Image: Consider the following pseudocode snippet: Image: Consider the following pseudocode snippet: $i \leftarrow 1$ Image: Consider the following pseudocode snippet: Image: Consider the following pseudocode snippet: $i \leftarrow 1$ Image: Consider the following pseudocode snippet: Image: Consider the following pseudocode snippet: $i \leftarrow 1$ Image: Consider the following pseudocode snippet: Image: Consider the following pseudocode snippet: $i \leftarrow 1$ Image: Consider the following pseudocode snippet: Image: Consider the following pseudocode snippet: $i \leftarrow 1$ Image: Constraint the following pseudocode snippet: Image: Constraint the following pseudocode snippet: $i \leftarrow 1$ Image: Constraint the following pseudocode snippet: Image: Constraint the following pseudocode snippet: <	
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	$n \rightarrow \infty$ $n 3 - n^2$ Image: Consider the following pseudocode snippet: $i \leftarrow 1$ $i \leftarrow 1$ while $i \leq n$: $i \leftarrow i + 2$ $f()$ $i \leftarrow i$	
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	$n + \infty$ $n - n - 2$ Consider the following pseudocode snippet: $i \leftarrow 1$ while $i \le n$: $i \leftarrow i + 2$ $f()$ Which of the following expressions in Θ -notation correctly describe the number of calls to f ? Select one or more: a. $\Theta(n^2)$ $\sum A = n/2 = \Theta(n)$ $i = l$ $\Theta(n)$ $i = 0$	Image: Complexity of the second stress of
	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Image: Complexity of the second stress of
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	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Image: Complexity of the second stress of
Ц) 	$n^{4}\infty$ $n^{3}-n^{2}$ Consider the following pseudocode snippet: $i \leftarrow 1$ while $i \leq n$: $i \leftarrow i + 2$ $f()$ Which of the following expressions in Θ -notation correctly describe the number of calls to f ? Select one or more: a. $\Theta(n^{2})$ D D D D $\Theta(n \log n)$ $i = 1$ $i = 1$ $n/2$ $\Theta(n)$ $\Theta(n)$ $i = 1$ $n/2$ $\Theta(n)$ $\Theta(n/2)$ D $I = 1$ $n/2$ $\Theta(n)$ $\Theta(n/2)$ $I = 1$ $n/2$ $I = 0$ $n/2$ $I = 0$ $O(n/2)$ $I = 1$ $I = 0$ $n/2$ $I = 0$ $I = 0$ $I = 0$ $I = 0$	Image: Complexity of the second stress of
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Ц) 	$n^{4}\infty$ $n^{3}-n^{2}$ Consider the following pseudocode snippet: $i \leftarrow 1$ while $i \leq n$: $i \leftarrow i + 2$ f() Which of the following expressions in Θ -notation correctly describe the number of calls to f ? Select one or more: a. $\Theta(n^{2})$ b. $\Theta(n \log n)$ $i = 1$ $n/2 = \Theta(n)$ $\Theta(n)$ $i = 1$ $\Theta(n)$ $i = 1$ $O(n)$ $i = 1$ $n/2 = \Theta(n)$ $O(n)$ $i = 1$ $n/2 = \Theta(n)$ $O(n)$ $i = 1$ $n/2 = O(n)$ $O(n)$ $O(n)$ $O(n)$ $O(n)$ $i = 1$ $n/2 = O(n)$ $O(n)$ $O(n)$ $O(n)$ $O(n)$ $O(n)$ $O(n)$ $O(n)$ $O(n)$ <th< td=""><td>Image: Complexity of the second stress of</td></th<>	Image: Complexity of the second stress of
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