# 2020 AMC 10B

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1.	What is	See more info here: https://nextjs.org/docs/messages/react-hydration-error	
		Call Stack	
	A -	throwOnHydrationMismatch	
	B -	/node_modules/react-dom/cjs/react-dom.development.js (12507:0)	
		tryToClaimNextHydratableInstance	
	C	/node_modules/react-dom/cjs/react-dom.development.js (12535:0)	
	DĘ	updateHostComponent	
	E 2	/node_modules/react-dom/cjs/react-dom.development.js (19902:0)	
		beginWork	
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	length :	HTMLUnknownElement.callCallback	
	A 2	/node_modules/react-dom/cjs/react-dom.development.js (4164:0)	
	B 2	Object.invokeGuardedCallbackDev	
		/node_modules/react-dom/cjs/react-dom.development.js (4213:0)	
	C 2	invokeGuardedCallback	
	D 4	/node_modules/react-dom/cjs/react-dom.development.js (4277:0)	
	E 4	beginWork\$1	
		/node_modules/react-dom/cjs/react-dom.development.js (27451:0)	•

**3.** The ratio of w to x is 4:3, the ratio of y to z is 3:2, and the ratio of z to x is 1:6. What is the ratio of w to y?

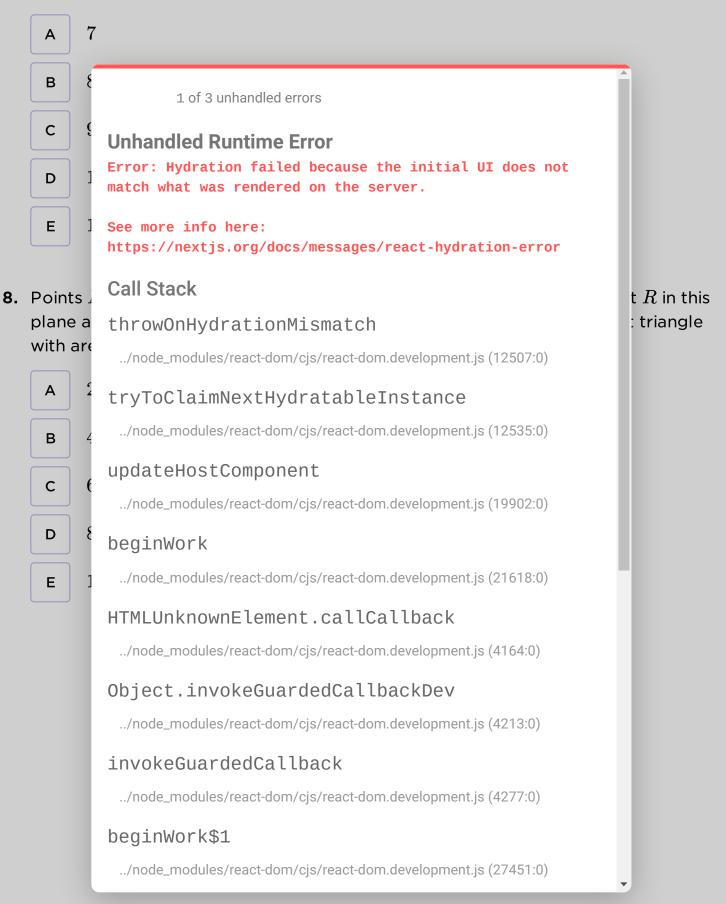
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		Call Stack	
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	C E	updateHostComponent	
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	D 7	beginWork	
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		invokeGuardedCallback	
		/node_modules/react-dom/cjs/react-dom.development.js (4277:0)	
		beginWork\$1	
		/node_modules/react-dom/cjs/react-dom.development.js (27451:0)	

5. How many distinguishable arrangements are there of 1 brown tile, 1 purple tile, 2 green tiles, and 3 yellow tiles in a row from left to right? (Tiles of the same color are indistinguishable.)

A 2	1 of 3 unhandled errors	
B 4	Unhandled Runtime Error	
<b>c</b>	Error: Hydration failed because the initial UI does not match what was rendered on the server.	
D 8	See more info here: https://nextjs.org/docs/messages/react-hydration-error	
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	invokeGuardedCallback	
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	/node_modules/react-dom/cjs/react-dom.development.js (27451:0)	•

6.

7. How many positive even multiples of 3 less than 2020 are perfect squares?



9. How many ordered pairs of integers (x, y) satisfy the equation

 $x^{2020} + y^2 = 2y?$ 



1 of 3 unhandled errors

# Unhandled Runtime Error

Error: Hydration failed because the initial UI does not match what was rendered on the server.

### See more info here: https://nextjs.org/docs/messages/react-hydration-error

### **Call Stack**

### throwOnHydrationMismatch

../node\_modules/react-dom/cjs/react-dom.development.js (12507:0)

### tryToClaimNextHydratableInstance

../node\_modules/react-dom/cjs/react-dom.development.js (12535:0)

### updateHostComponent

../node\_modules/react-dom/cjs/react-dom.development.js (19902:0)

# beginWork

../node\_modules/react-dom/cjs/react-dom.development.js (21618:0)

# HTMLUnknownElement.callCallback

../node\_modules/react-dom/cjs/react-dom.development.js (4164:0)

# Object.invokeGuardedCallbackDev

../node\_modules/react-dom/cjs/react-dom.development.js (4213:0)

# invokeGuardedCallback

../node\_modules/react-dom/cjs/react-dom.development.js (4277:0)

### beginWork\$1

../node\_modules/react-dom/cjs/react-dom.development.js (27451:0)

10. A three-quarter sector of a circle of radius 4 inches together with its interior can be rolled up to form the lateral surface area of a right circular cone by taping together along the two radii shown. What is the volume of the cone in cubic inches?

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<b>)</b> :	
	1 of 3 unhandled errors
	<b>Unhandled Runtime Error</b> Error: Hydration failed because the initial UI does not match what was rendered on the server.
	See more info here: https://nextjs.org/docs/messages/react-hydration-error
	Call Stack
	throwOnHydrationMismatch
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	tryToClaimNextHydratableInstance
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	invokeGuardedCallback

../node\_modules/react-dom/cjs/react-dom.development.js (4277:0)

# beginWork\$1

../node\_modules/react-dom/cjs/react-dom.development.js (27451:0)

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В

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D

Е

11. Ms. Carr asks her students to read any 5 of the 10 books on a reading list. Harold randomly selects 5 books from this list, and Betty does the same. What is the probability that there are exactly 2 books that they both select?

Α	1 of 3 unhandled errors
В	<b>Unhandled Runtime Error</b> Error: Hydration failed because the initial UI does not match what was rendered on the server.
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	/node_modules/react-dom/cjs/react-dom.development.js (27451:0)

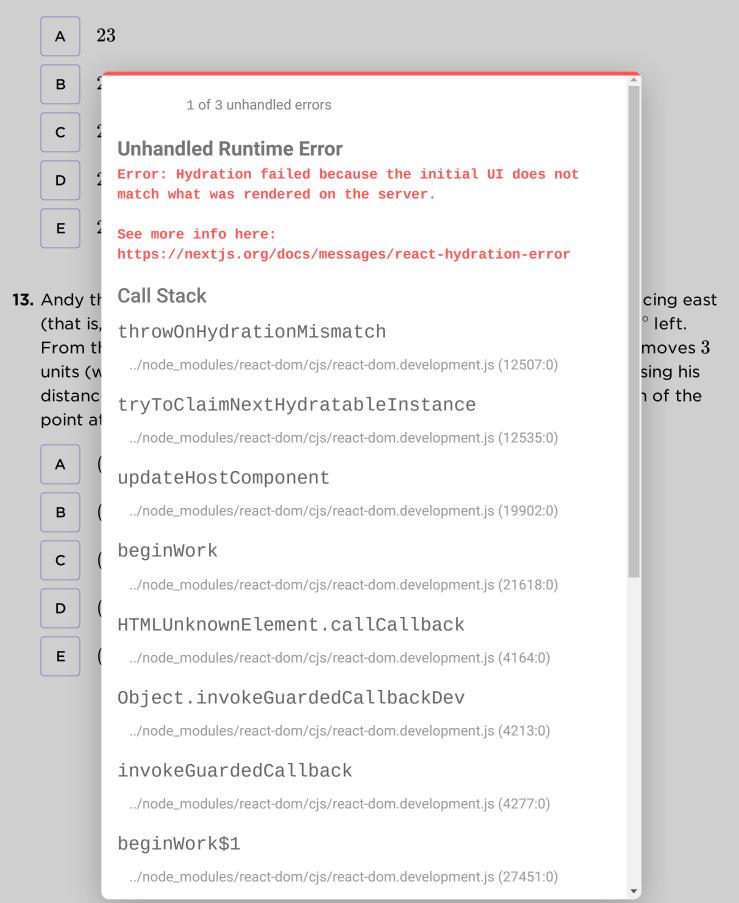
# 12. The decimal representation of

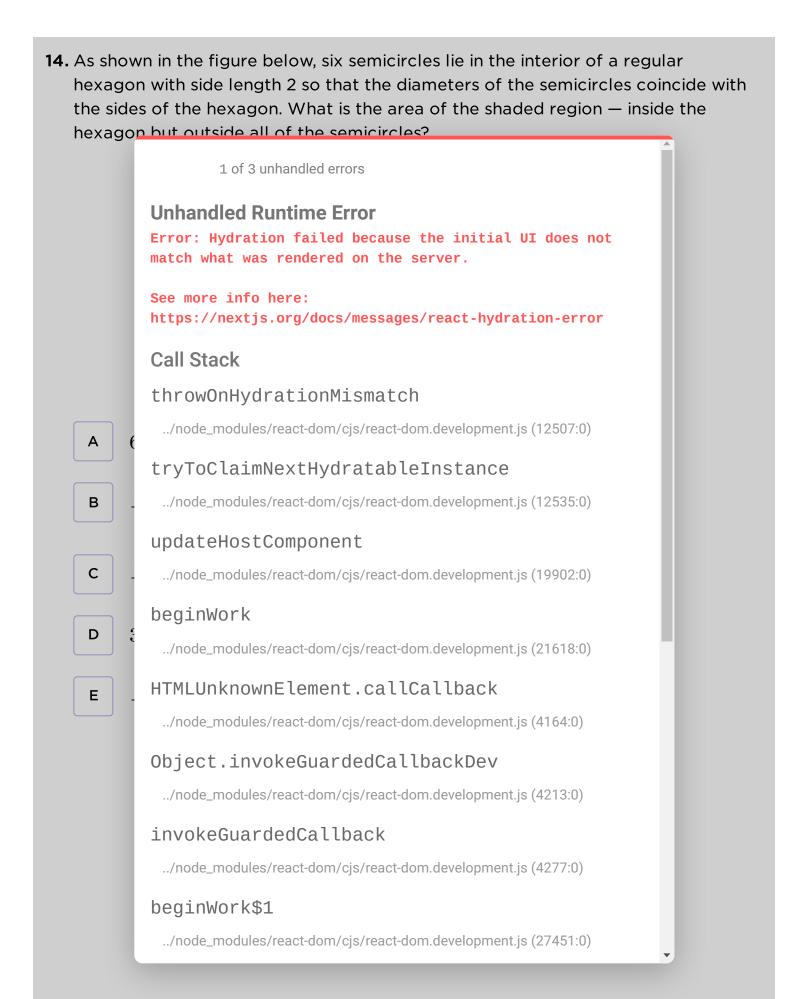
# $\frac{1}{2}$

$20^{20}$	

	$20^{20}$	
consist: several	1 of 3 unhandled errors	then er the
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	beginWork\$1	
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which, by the pattern established above, implies that there are $26$ zeroes after the decimal point.		

#### Thus, the correct answer is **D**.





**15.** Steve wrote the digits 1, 2, 3, 4, and 5 in order repeatedly from left to right, forming a list of 10,000 digits, beginning 123451234512...

from th	erased every third digit from his list (that is, the $3$ rd, $6$ th, $9$ th, .	is, the 4
th, 8th,	1 of 3 unhandled errors	every fifth
digit fra	Unhandled Runtime Error	
What is 2019, 20	Error: Hydration failed because the initial UI does not match what was rendered on the server.	
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B (	Call Stack	
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17. There are 10 people standing equally spaced around a circle. Each person knows exactly 3 of the other 9 people: the 2 people standing next to her or him, as well as the person directly across the circle. How many ways are there for the 10 people to split up into 5 pairs so that the members of each pair know each other?

	A 1	1 of 3 unhandled errors	
	B ]	<b>Unhandled Runtime Error</b> Error: Hydration failed because the initial UI does not match what was rendered on the server.	
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	D -	invokeGuardedCallback	
	<b>E</b> -	/node_modules/react-dom/cjs/react-dom.development.js (4277:0)	
		beginWork\$1	
		/node_modules/react-dom/cjs/react-dom.development.js (27451:0)	•

**19.** In a certain card game, a player is dealt a hand of cards from a deck of 52 distinct cards. The number of distinct (unordered) hands that can be dealt to the player can be written as 158A00A4AA0. What is the digit A?

	A 2	1 of 3 unhandled errors	-
	в	Unhandled Runtime Error	
	C 4	Error: Hydration failed because the initial UI does not match what was rendered on the server.	
	D	See more info here: https://nextjs.org/docs/messages/react-hydration-error	
	E 7	Call Stack	
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	E	invokeGuardedCallback	
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		beginWork\$1	
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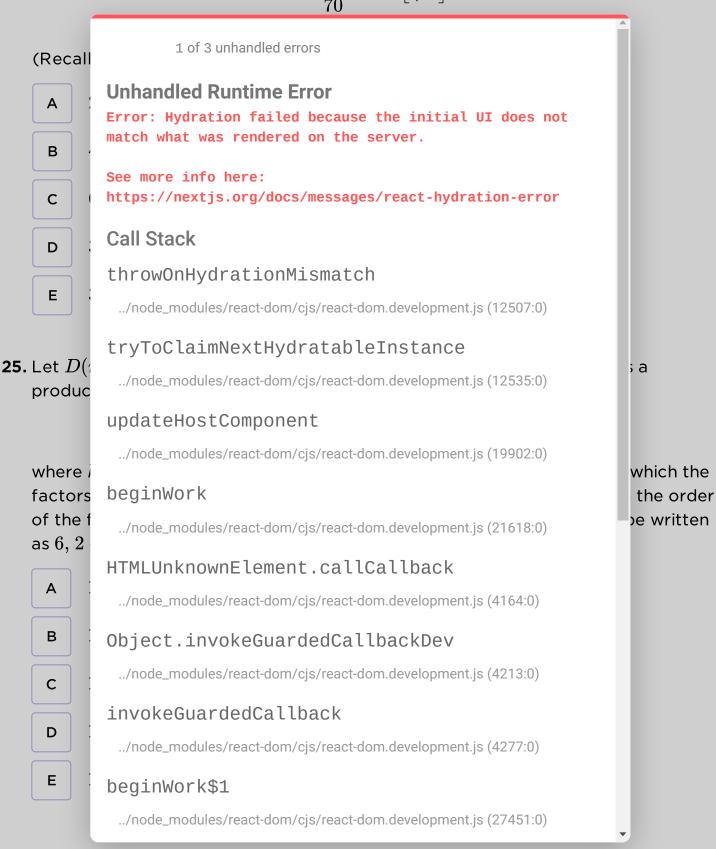
AE =	are $ABCD$ , points $E$ and $H$ lie on $\overline{AB}$ and $\overline{DA}$ , respectively, so that $AH$ . Points $F$ and $G$ lie on $\overline{BC}$ and $\overline{CD}$ , respectively, and points $I$ and $J$ lie $\overline{H}$ so that $\overline{FI} \perp \overline{EH}$ and $\overline{GJ} \perp \overline{EH}$ . See the figure below. Triangle $AEH$ ,
quadr 1. Wh	
	Unhandled Runtime Error Error: Hydration failed because the initial UI does not match what was rendered on the server.
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**22.** What is the remainder when  $2^{202} + 202$  is divided by  $2^{101} + 2^{51} + 1?$ 

100Α В 1 of 3 unhandled errors С Unhandled Runtime Error Error: Hydration failed because the initial UI does not D match what was rendered on the server. Е See more info here: https://nextjs.org/docs/messages/react-hydration-error **Call Stack** 23. Square A(1,1)throwOnHydrationMismatch transfo ../node\_modules/react-dom/cjs/react-dom.development.js (12507:0) tryToClaimNextHydratableInstance • L, • *R*, ../node\_modules/react-dom/cjs/react-dom.development.js (12535:0) • *H*. updateHostComponent • V. ../node\_modules/react-dom/cjs/react-dom.development.js (19902:0) Each o tions of beginWork the lab ould send ../node\_modules/react-dom/cjs/react-dom.development.js (21618:0) ) to itself. the ver vill send How m HTMLUnknownElement.callCallback all of th R, R, Ves back ../node\_modules/react-dom/cjs/react-dom.development.js (4164:0) to their Object.invokeGuardedCallbackDev Α ../node\_modules/react-dom/cjs/react-dom.development.js (4213:0) invokeGuardedCallback В ../node\_modules/react-dom/cjs/react-dom.development.js (4277:0) С beginWork\$1 D ../node\_modules/react-dom/cjs/react-dom.development.js (27451:0)  $2^{39}$ Е

### **24.** How many positive integers n satisfy

$$\frac{n+1000}{70} = \lfloor \sqrt{n} \rfloor?$$



### Solutions: https://live.poshenloh.com/past-contests/amc10/2020B/solutions



1 of 3 unhandled errors

### **Unhandled Runtime Error**

Error: Hydration failed because the initial UI does not match what was rendered on the server.

See more info here: https://nextjs.org/docs/messages/react-hydration-error

**Call Stack** 

throwOnHydrationMismatch

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../node\_modules/react-dom/cjs/react-dom.development.js (27451:0)