Bellwork Alg 2 Thursday, February 14, 2019

1. State all points of discontinuity. Which are Holes? Which are VA? $\frac{4x^3 - 8x^2 - 140x}{6x^4 - 294x^2}$

Pts of Discontinuity:

VA:

Hole:

2. Graphene, which is used in the manufacture of integrated circuits, is so thin that a sheet weighing one ounce can cover up to 7 football fields. If a football field has an area of approximately $1\frac{1}{3}$ acres, about how many acres could 48 ounces of graphene cover?

A) 250 B) 350 C) 450 D) 1,350

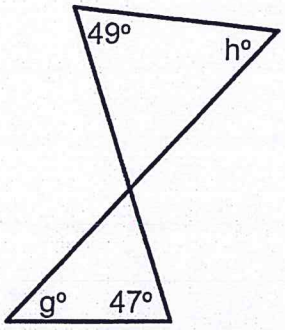
3. If exactly two of the three integers $i, j,$ and k are odd, which of the following must be odd?

I. $(i+j)k$ *II.* $i+j+k$ *III.* $ij+k$

A) *III* only B) *I*, *II*, and *III* C) *I* and *III* only D) *I* and *II* only E) *I* only

4. In the figure to the right, what is the value of |g-h|?

A) 2
B) 41
C) 43
D) 84
E) 86



Note: figure not drawn to scale.

5. Which of the following could be the remainders when 3 consecutive integers are each divided by 2?

A) 2,0,1 B) 0,1,2 C) 0,1,0 D) 0,0,1 E) 0,0,0

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ANSWERS

1. State all points of discontinuity. Which are Holes? Which are VA?

$$\frac{4x^3 - 8x^2 - 140x}{6x^4 - 294x^2}$$

Pts of Discontinuity: $x = 0, \pm 7$

VA: $x = -7, 0$

Hole: $x = 7$

$4x^3 - 8x^2 - 140x$

$4x(x^2 - 2x - 35)$

$4x(x-7)(x+5)$

$6x^4 - 294x^2$

$6x^2(x^2 - 49)$

$6x^2(x+7)(x-7)$

$\frac{4x(x-7)(x+5)}{6x^2(x+7)(x-7)}$ → zeros of num $0, 7, -5$

→ zeros of denom $0, \pm 7$

2. Graphene, which is used in the manufacture of integrated circuits, is so thin that a sheet weighing one ounce can cover up to 7 football fields. If a football field has an area of approximately $1\frac{1}{3}$ acres, about how many acres could 48 ounces of graphene cover?

A) 250 B) 350 C) 450 D) 1,350

$1 oz = 7$ fields

1 field $= 1\frac{1}{3}$ acres

$48 oz \Rightarrow \frac{28}{3} \cdot 48$

$= 448$ acres

$1 oz = 7 \cdot 1\frac{1}{3} = 7 \cdot \frac{4}{3}$

$1 oz = \frac{28}{3}$ acres

3. If exactly two of the three integers $i, j,$ and k are odd, which of the following must be odd?

I. $(i+j)k$ *II.* $i+j+k$ *III.* $ij+k$

A) *III* only B) *I*, *II*, and *III* C) *I* and *III* only D) *I* and *II* only E) *I* only

I $(i+j)k$: $(O+O)E = EVEN$ or $(O+E)O = (O)(O) = ODD$

could be even

II $i+j+k$:

$= O+O+E$

$= E+E = EVEN$

MUST BE EVEN

III $ij+k$:

$O \cdot O + E = O + E = ODD$

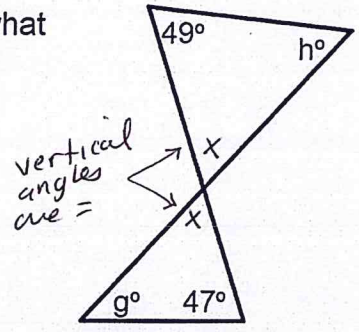
or

$O \cdot E + O = E + O = ODD$

MUST BE ODD

4. In the figure to the right, what is the value of |g-h|?

A) 2
B) 41
C) 43
D) 84
E) 86



vertical angles are =

Note: figure not drawn to scale.

$49 + h + x = 47 + g + x$

$-x \quad\quad -x$

$49 + h = 47 + g$

$-h \quad\quad -h$

$49 = 47 + g - h$

$-47 \quad\quad -47$

$2 = g - h$

5. Which of the following could be the remainders when 3 consecutive integers are each divided by 2?

A) 2,0,1 B) 0,1,2 C) 0,1,0 D) 0,0,1 E) 0,0,0

NOT POSSIBLE: only remainders when dividing by 2 are 0 & 1

even # ÷ 2 ⇒ no remainder

odd # ÷ 2 ⇒ remainder = 1

3 consecutive integers is either:

odd even odd ⇒ R = 101

or

even odd even ⇒ R = 010