

January 24, 2017
 * Quiz # 2 - Tomorrow
 • COR ↓ 1.1
 • Power Tools

Jan 24-9:07 AM

Absolute Value
 def: $|a| = \begin{cases} +a & \text{if } a \geq 0 \\ -a & \text{if } a < 0 \end{cases}$
 $| -13 | = -(-13) = (-1) \cdot (-13) = 13$
 $a = -13$
 $- | 5 - 2 |$
 $- | 3 | = (-1) \cdot 3 = -3$
 $- | -8 | = (-1) \cdot | -8 |$
 $= (-1) \cdot (-1) \cdot (-8)$
 $= (-1) \cdot 8$
 $= -8$

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Integer Addition
 ① Same Sign
 a) $(+) + (+) = \text{add \& keep sign}$
 b) $(-) + (-) = \text{add \& keep sign}$
 $5 + 6 = 11$
 $-5 + (-6) = -11$
 $-5 - 6 = -11$

 A number line with tick marks at -11, -5, and 0. A green arrow starts at -5 and points left to -11. Another green arrow starts at -6 and points left to -11.

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② Different Signs
 a) $(+) + (-)$
 b) $(-) + (+)$
 Find the abs of both numbers & subtract the smaller from the larger
 Then keep the sign of the larger abs number
 $-12 + 2$
 $| -12 | = 12$
 $| 2 | = 2$
 $12 > 2$
 So, $12 - 2 = 10$
 Since the larger number is negative, the result is -10 .

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$-12 + 2 = -10$

 A number line with tick marks at -12, -10, and 0. A red arrow starts at -12 and points right to -10, labeled '+2'. A green arrow starts at -12 and points left to -10.

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$-2 + | -11 - 5 |$
 $-2 + | -16 |$
 $-2 + 16 = 14$

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Multiplication of Integers
(Division)

① Same Signs

(a) $(+) \cdot (+) = +$
 $8 \cdot 5 = 40$

(b) $(-) \cdot (-) = +$
 $(-6) \cdot (-4) = 24$

② Different Signs

(a) $(+) \cdot (-) = -$
 $8 \cdot (-4) = -32$

(b) $(-) \cdot (+) = -$
 $-5 \cdot 10 = -50$

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Exponents

$a^n = \underbrace{a \cdot a \cdot a \dots a}_n$
 ↑ Base n ← exponent
 n factors of a

$5^3 = 5 \cdot 5 \cdot 5$
 ↑ Base 3 ← exponent
 = $25 \cdot 5$
 = 125

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$(-3)^2 = (-3) \cdot (-3) = 9$
 ↑ Base 2 ! Even

$-3^2 = (-1) \cdot 3^2$
 ↓ Base 2 ! Even
 = $(-1) \cdot 3 \cdot 3$
 = $(-3) \cdot 3$
 = -9

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$(-5)^4 = ((-1) \cdot (+5))^4$
 = $(-5) \cdot (-5) \cdot (-5) \cdot (-5)$
 = $25 \cdot (-5) \cdot (-5)$
 = $(-125) \cdot (-5)$
 = 625

-5^4

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$(-10) ? \quad | -10 |$
 $-10 < 10$

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Do CORE 1.1

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