BE-Alg.2 | Monday 8-24-09

3 ACT Questions — 3 minutes

From "The Real ACT" 2nd Edition

⇒ "The only guide with 3 "Real" ACT Tests"
"From the makers of the ACT"

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① Kayla ran $1\frac{2}{5}$ miles on Monday and $2\frac{1}{3}$ miles on Tuesday. What was the total distance, in miles, Kayla ran during these 2 days?

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② If $4x+3=9x-4$, then $x=?$

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③ The formula for the volume V of a sphere with radius r is $V=\frac{4}{3}\pi r^3$


OK

If the radius of a spherical rubber ball is $1\frac{1}{4}$ inches, what is the volume to the nearest cubic inch?

BE
ANSWERS

① $1\frac{2}{5}$ mi. + $2\frac{1}{3}$ mi $\Rightarrow \frac{2}{5} + \frac{1}{3}$

$\frac{6}{15} + \frac{5}{15} = \frac{11}{15}$

$\therefore \boxed{3\frac{11}{15} \text{ mi}}$

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② $4x + 3 = 9x - 4$

$-4x + 4 \quad -4x + 4$

$\frac{7}{5} = \frac{5x}{5}$ $\quad \therefore \boxed{x = \frac{7}{5}}$

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③ $V = \frac{4}{3}\pi r^3$ $\quad r = 1\frac{1}{4} = \frac{5}{4}$ in

$V = \frac{4}{3}(3.14)\left(\frac{5}{4}\right)^3$

$V = \frac{4^1}{3}(3.14)\left(\frac{125}{\frac{64}{16}}\right) = \frac{(3.14)(125)}{48}$

$\approx 8.18 \approx \boxed{8 \text{ in}^3}$

The importance of doing A good job on Homework!

	HW1	Quiz 1*
Lowest 5 HW	0%	25%
	56%	42%
	56%	83%
	67%	58%
	69%	75%
	≈	≈
Highest 5 HW	99%	100%
	96%	100%
	91%	92%
	91%	92%
	91%	93%

* 4-answer multiple choice ⇒ 0 ≈ 25%

This was a short, ~15 question, quiz over simple equations, a review topic for Alg. 2, the grp gets wider (much wider) with new topics.

A little Review:

"like" terms ⇒ 1. same variable
2. variables have same exponent

"combine" like terms ⇒ + or −

Ex) $\underline{2x} + 3y - z + 4 + 5xy + \underline{3x} - 2xy + 4x^2$

$5x + 3y - z + 4 + 3xy + 4x^2$

↑ Degree 1 ↑ Degree 1 ↑ Degree 1 ↑ Degree 0 ↑ Degree 2 ↑ Degree 2

The degree of a single term (monomial) is the sum of the exponents of all its variables

$4x^2 + 3xy + 5x + 3y - z + 4$

Sign Rules: +, − SSA, KSS "same sign add, keep same sign"

Ex) $2 + 6 = 8$
$-2 - 6 = -8$

DSD, BOW "different signs take their difference, biggest one wins"

Ex) $-2 + 6 = 4$
$2 - 6 = -4$

SPECIAL "taking away a − is a +"

Ex) $-2 - (-6) = -2 + (6) = 4$

F.R.
+, − CD
• ÷ $\frac{+\cdot+}{b\text{-}b}$ F≠M

•, ÷ SPDN "same signs +, diff. signs −"

Ex) $-2(-2) = 4$ $\quad \frac{-2}{-2} = 1$
$-2(2) = -4$

If you end up with the solution to an equation like: $-x = 3$

"Change All Signs" by imagining you multiply (or divide) both sides by -1 (GRE)

$-1 \cdot -x = 3 \cdot -1$

"SPDN"

$\boxed{x = -3}$

↑ want x not $-x$ "by itself"

• or ÷ both sides by -1 "changes all signs"

Same way you move $-$ from bottom of fraction to top

$$\frac{x}{-5} = \frac{x}{-5} \cdot \frac{-1}{-1} = \frac{-x}{5}$$

Never leave $-$ in bottom, take advantage of "SPDN" to move $-$ to top

"Change all signs" in top & bottom

READ THESE EXPRESSIONS:

$x < 6$

$x > 6$

$x \leq 6$

$x \geq 6$

$x = 6$

MATH EXPRESSION WITH AN EQUALS SIGN ⇒ EQUATION

MATH EXPRESSION WITHOUT EQUALS SIGN ⇒ "NOT EQUATION" → INEQUALITY

HOW DOES -6 COMPARE TO -5?

HOW DOES 6 COMPARE TO 5

$-6 < -5$

$6 > 5$

POSITIVES AND NEGATIVES "COMPARE" DIFFERENTLY. SO IF YOU ARE SOLVING AN INEQUALITY, YOU HAVE TO WORRY IF YOU DO AN UNDO THAT "CHANGES ALL SIGNS" —— LETS SEE...

Try $+, -, \cdot, \div \Rightarrow$ OK

Try $\cdot, \div$ WITH A NEGATIVE!

OOPS $\Rightarrow$ MUST CHANGE ALL SIGNS WHICH includes "FLIPPING the $<, >, \leq, \geq$ SYMBOL"

GRI - Golden Rule of Inequalities

"SAME AS GRE plus, if you MULTIPLY OR divide by a NEGATIVE, flip the INEQUALITY SYMBOL.

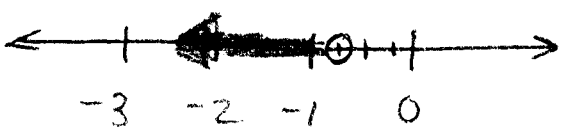
(Ex) $5 - 4a > 8$

$-5 \qquad -5$

$-4a > 3$

$\frac{-4a}{-4} > \frac{3}{-4}$

$$\boxed{a < -\frac{3}{4}}$$



WHEN USING GRI, ASK YOURSELF AT EACH STEP "DO I NEED TO FLIP?"

$<, > \Rightarrow$ open ○

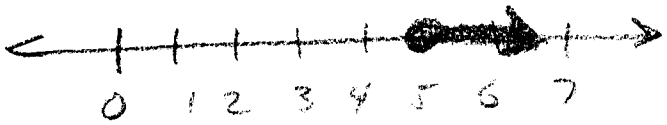
$\leq, \geq \Rightarrow$ filled ●

(Ex) $3x + 4 \geq 19$

$-4 \quad -4$

$\frac{3x}{3} \geq \frac{15}{3}$

$\boxed{x \geq 5}$ or $\{x \mid x \geq 5\}$ or $[5, +\infty)$



(Ex) $x > 3 = (3, +\infty)$

(Ex) $x < 12 = (-\infty, 12)$

(Ex) $x \leq 12 = (-\infty, 12]$

Ch. 1-5 Solving Inequalities

Ex3 Pg 35

$$-m \leq \frac{m+4}{9}$$

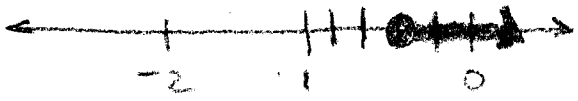
$$9(-m) \leq \frac{m+4}{9} \cdot 9$$

$$-9m \leq m + 4$$

$-m \quad -m$

$$\frac{-10m}{-10} \leq \frac{4}{-10}$$

$$\boxed{m \geq -\frac{2}{5}}$$



• Homework: PAGE 37-38 #4-12, 35, 36, 50, 51