Name:

5-a-day ACT prep #10

Solve each problem, show your work, and then choose the correct answer.

Do not linger over problems that take too much time. Solve as many as you can; then return to the others in the time you have left for this test.

You are permitted to use a calculator on this test. You may use your calculator for any problems you choose, but some of the problems may best be done without using a calculator.

Note: Unless otherwise stated, all of the following should be assumed.

1. Illustrative figures are NOT necessarily drawn to scale.
2. Geometric figures lie in a plane.
3. The word *line* indicates a straight line.
4. The word *average* indicates arithmetic mean.

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1. A car is depreciating (losing it's value) at the rate of 13% each year. If the original value of the car is \$37,000, which of the following expresses the value of the car t years after the original purchase in dollars?

subtract 13¢ each yr.

A. $37,000 - (0.13)^t$
B. $37,000 - 37,000(0.13)^t$ *= 0 at t=0*
C. $37,000(0.13)^t$ *→depreciates 87%*
D. $37,000(0.87)^t$
E. None of these.

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2. What is the slope of the line given by the equation $x = -3$?

A. -3
B. $-\frac{1}{3}$
C. 0
D. $\frac{1}{3}$
E. Undefined

rise → 1
run → 0
x = -3
$\frac{1}{0}$ *undefined!*

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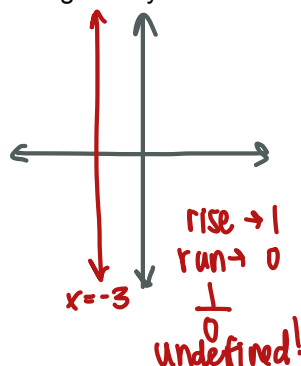
3. Assume $x \geq 0$ and $y \geq 0$. Simplify $-2x\sqrt{12xy^2} + 3y\sqrt{3x^3} - 2\sqrt{48x^3y^2}$?

$-4xy\sqrt{3x} + 3xy\sqrt{3x} - 8xy\sqrt{3x}$

A. $-37xy\sqrt{3x^3y}$
B. $-xy\sqrt{63x^3y^2}$
C. $-12xy\sqrt{63x}$
D. $-9xy\sqrt{3x}$
E. None of these

$-4+3-8 = -9$

$-2x\sqrt{3\cdot4xy^2}$
$-4xy\sqrt{3x}$
$3yx\sqrt{3x}$
$-2\sqrt{16\cdot3x^2\cdot xy^2}$
$-8xy\sqrt{3x}$

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4. On their last math test, Grant scored three more than twice the points that his friend Hayden did. If they scored 126 points altogether, find Grant's score. `

A. 41
B. 44
C. 82
D. 85
E. None of these.

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5. Parallelogram $MATH$ has a perimeter of 50 units, and side $\overline{MA}$ has a length of 8 units. If it can be determined, what is the length of side $\overline{AT}$?

A. 12.5
B. 16
C. 17
D. 21
E. Cannot be determined

G: $2x+3$ $2x+3+x=126$
H: $x = 41$ $3x = 123$
$\frac{3x}{3} = \frac{123}{3}$
$2(41)+3 = 85$ $x = 41$

A   T
8   8
M   H
$34 \div 2 = 17$

$\begin{array}{r} 50 \\ -16 \\ \hline 34 \end{array}$