

BE-Alg. 1 MONDAY 11-21-11

Solve by EBA or EBS. Tip: One of these is EASIER,
"ready, Aim, fire"
NOT "ready, fire, Aim"

$$\textcircled{1} \begin{cases} x + y = -3 \\ x - y = 1 \end{cases}$$

$$\textcircled{2} \begin{cases} 2x + 3y = 44 \\ x = 4y \end{cases}$$

$$\textcircled{3} \begin{cases} 3x + 4y = 6 \\ 5x + 2y = -4 \end{cases}$$

$\textcircled{4}$ Write a linear equation to model:
A cable TV company charges \$60
for installation plus \$35 per month.

- Using systems of linear equations to solve problems on the ACT

8. Uptown Cable, a cable TV provider, charges each customer \$120 for installation, plus \$25 per month for cable programming. Uptown's competitor, Downtown Cable, charges each customer \$60 for installation, plus \$35 per month for cable programming. A customer who signs up with Uptown will pay the same total amount for cable TV as a customer who signs up with Downtown if each pays for installation and cable programming for how many months?

- F. 3
G. 6
H. 10
J. 18
K. 30

From ACT Sample Test at:

<http://www.actstudent.org/>

See also:

<http://www.bulldogmath.com/bdmlinks.htm>

Use A System of Linear Equations to SOLVE:

$$y = mx + b$$

$m \Rightarrow$ SLOPE $\Rightarrow$ dollars per month

$b \Rightarrow$ "starting value", when MONTHS = 0

$$C = (25m + 120)$$

$$(C) = 35m + 60$$

$$\begin{array}{r} 25m + 120 = 35m + 60 \\ -25m \qquad -25m \end{array}$$

$$\begin{array}{r} 120 = 10m + 60 \\ -60 \qquad -60 \end{array}$$

$$\frac{60}{10} = \frac{10m}{10}$$

$$\therefore m = 6 \text{ MONTHS}$$

10. The sum of the real numbers x and y is 11. Their difference is 5. What is the value of xy ?

F. 3
G. 5
H. 8
J. 24
K. 55

ACT Practice Test at:
<http://www.actstudent.org/>

$$x + y = 11$$

$$x - y = 5$$

$$2x = 16$$

$$x = 8 \quad \therefore y = 3$$

$$\therefore xy = 24$$

Ch. 8-1 Multiplying Monomials

(*) MONOMIAL ONE A number, a variable,
 or the product of MULTIPLY
 a number and one
 the coefficient
 or more variables.

(EX) 6, x, 2x, 2xy, $\frac{1}{2}xy^2$, $\frac{x}{5}$
 $\frac{1}{2}xyy$ $\frac{1}{5}x$

(NOT) $x+y$, $\frac{4}{x}$, $\frac{x}{y}$ WHY NOT?

Is $2x+3x$? No, but, $2x+3x = \underline{\underline{5x}}$ yes!

Is $2x+3x^2$? No, NOT Like Terms.

- SAME VARIABLE
- VARIABLES HAVE SAME EXponents

When you multiply two monomials together, you still have a monomial,

for example: $(7)(x) = 7x$

$$(3)(x)(y) = 3xy$$

How would you multiply:

$$(5x^2)(7x^3) \quad ?$$

Long way: $5 \cdot 7 \cdot x \cdot x \cdot x \cdot x \cdot x$

$$\underbrace{\quad}_{x^2} \quad \underbrace{\quad}_{x^3}$$

$$\underbrace{5 \cdot 7}_{35} \cdot \underbrace{x \cdot x \cdot x \cdot x \cdot x}_{x^5}$$

$$35x^5$$

Is there a "SHORT WAY"?

Let's try it with numbers:

$$2^2 \cdot 2^3 = 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2$$

$$4 \cdot 8 = 2^5 = 32 \checkmark$$

First (of six) Exponent Rules

(*)

MULTIPLICATION RULE

(for exponents)

When multiplying
powers with the same
base, add the exponents.

MR

$$a^n \cdot a^m = a^{n+m}$$

$a, b, \dots$ traditionally used for bases
 $n, m, \dots$ used for exponents

(Ex) $(5x^2)(7x^3) = 35x^5$

$$\textcircled{\text{EX}} \quad (6x^5)(4x^3) = 24x^8$$

$$\textcircled{\text{EX}} \quad (9x^8)(x) = 9x^9$$

$$(9x^8)(1x^1)$$

↑
"FORMAL DRESS"

$$\textcircled{\text{EX}} \quad 5^9 \cdot 5^7 = 5^{16}$$

$$\textcircled{\text{EX}} \quad 3^2 \cdot 3 = 3^3 = \boxed{27}$$

If "small"
then change to a
number

$$\textcircled{\text{EX}} \quad 2^3 \cdot 3^3 = \text{CAN'T USE SHORTCUT,}$$

CAN ONLY USE MR
IF SAME BASE

$$8 \cdot 27 = 216$$

$$\textcircled{\text{EX}} \quad (4ab^6)(-7a^2b^3) = -28a^3b^9$$

Monomial - Yes or No,
if NOT... why NOT?

7 yes

0 yes

$7x$ yes

$7xyz^3$ yes

$\frac{1}{7}x$ yes

$\frac{x}{7}$ yes

$\frac{7}{x}$ NOT, $\div$ by variable

$7 + x$ NOT, 2 monomials
added together

• Homework: Page 413 # 15 to 26