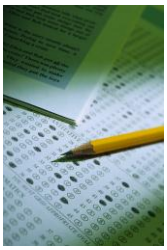
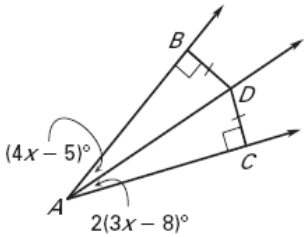


Math ACT Hints, Suggestions and Other Important Stuff

1. Pace yourself – 60 Questions in 60 Minutes
   - Do any problem you know how to do that you believe will take you 1 minute or less.
   - Use a "+" on the answer sheet next to a question you believe you can do, but might take more than a minute to complete. Skip that question for now and go back to it later.
   - Use a " - " on the answer sheet next to a question you don't think you know how to do. Skip that question for now and go back after you complete all the problems with a "+".
   - Be sure to go back and answer **every** question…your score is affected the same whether you get it wrong or leave it blank…might as well **guess** and hope you get it right! (With 5 distracters, you have a 20% chance at guessing right…or even better if you can eliminate an obvious wrong answer or two.)

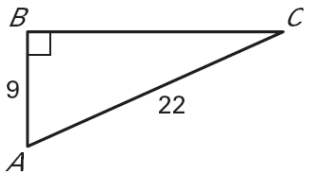
2. Be sure you answer the **right** question.
   For example:

What is $m\angle BAC$?



(A) 4.5° (B) 5.5° (C) 17°
(D) 34° (E) 36°

3. Be sure your answer is **reasonable**.
   For example:



$a^2 + b^2 = c^2$
$9^2 + 22^2 = c^2$
$81 + 484 = c^2$
$565 = c^2$
$23.770 = c$

Can BC be longer than the hypotenuse? No. Therefore something is wrong!

4. Use the distracters to help you!
   For example:

What is the solution set of $\sqrt{x+1} = x - 1$?

A. {0, 1}
B. {3}
C. {0}
D. {0, 3}
E. {−1, 1}

B Square both sides of the radical equation.

$$(\sqrt{x+1})^2 = (x-1)^2$$
$$x + 1 = x^2 - 2x + 1$$
$$x^2 - 3x = 0$$
$$x(x-3) = 0$$
$$x = 0 \quad x - 3 = 0$$
$$x = 3$$

Both potential solutions must be checked in the original equation.

Check 0: $\sqrt{0+1} \stackrel{?}{=} 0 - 1$
$1 \neq -1$
0 is not in the solution set.

Check 3: $\sqrt{3+1} \stackrel{?}{=} 3 - 1$
$\sqrt{4} \stackrel{?}{=} 2$
$2 = 2$

The solution set is {3}.

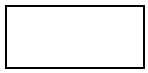
Formulas and other info you should know:

Area of a Circle: πr^2

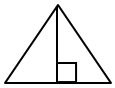
Circumference of a Circle: $2\pi r$ *or* πd

Area of Polygons:

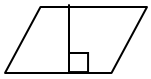
Square = s^2



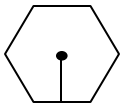
Rectangle = $l \cdot w$ (or $b \cdot h$)



Triangle = $\frac{1}{2} b \cdot h$



Parallelogram = $b \cdot h$



Regular Polygons = $\frac{1}{2} a \cdot p$

(a = apothem, p = perimeter)

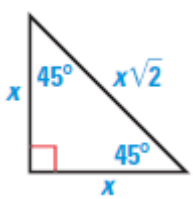
Order of Operations:

Please	Parenthesis (inner to outer)
Excuse	Exponents
My **D**ear	Multiply or Divide (left to right)
Aunt **S**ally	Add or Subtract (left to right)

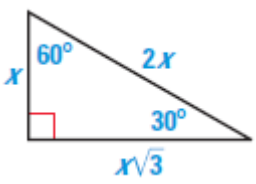
To solve a quadratic equation $ax^2 + bx + c = 0$
(be sure equation is set equal to zero!)

Quadratic formula: $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

Special Right Triangles: 45°-45°-90°



30°-60°-90°



Conic Section Equations:

Circle: $(x - h)^2 + (y - k)^2 = r^2$
Center: (h, k) Radius: r

Ellipse: $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$

Hyperbola: $\frac{x^2}{a^2} - \frac{y^2}{b^2} = 1$

Parabola: $y = ax^2 + bx + c$
or $x = ay^2 + by + c$

Trigonometry:

$S = \frac{o}{h}$ $C = \frac{a}{h}$ $T = \frac{o}{a}$

$\sin^2\Theta + \cos^2\Theta = 1$

Subscore 1: Pre-Algebra – 14 questions
Elementary Algebra – 10 questions

Examples:

$\left|\sqrt{4}-12\right|$

F. -8

G. -10

H. 8

J. 10

K. 12

What is the largest possible product of 2 even integers whose sum is 22?

F. 11

G. 44

H. 100

J. 120

K. 144

Subscore 2: Intermediate Algebra – 9 questions
Coordinate Geometry – 9 questions

Examples:

A company sells jeans and T-shirts. *J* represents jeans and *T* represents T-shirts in the equations below:

$2J + T = \$50$
$J + 2T = \$40$

Sarah buys one pair of jeans and one T-shirt. How much does she pay for her entire purchase?

F. $10

G. $20

H. $30

J. $70

If a circle with center (-6, 6) is tangent to the *x* axis in the standard (*x*, *y*) coordinate plane, what is the diameter of the circle?

A. -6

B. -12

C. 6

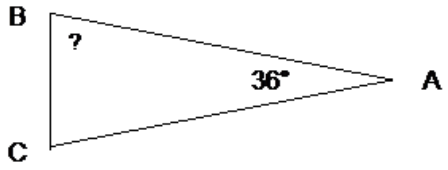
D. 12

E. 36

Subscore 3: Plane Geometry – 14 questions
Trigonometry – 4 questions

Examples:

Consider the isosceles triangle in the diagram below:



What is the measurement of ∠B?

A. 36°

B. 45°

C. 72°

D. 144°

E. Cannot be determined from the information provided.

Consider the laws of sines and cosines.

$(\sin A)^2 = ?$

A. $1 - (\cos A)^2$

B. $(\cos A)^2 - 1$

C. $(\tan A)^2$

D. $1 - (\tan A)^2$

E. $(\tan A)^2 - 1$