Some Math Regents Tips

1 Do the problems you like first and come back to the harder ones.

2 For multiple choice problems, put all answers in the TEST BOOKLET as well as on the BUBBLE SHEET! That way, if you make a mistake filling in the bubbles you can easily correct it.

3 NEVER leave a multiple-choice question blank. There's no penalty for wrong answers and you can usually eliminate one or two answers that you know are wrong. Do that and guess from the remaining choices.

4 If you use a guess and check method on the open-ended problems, you MUST show at least THREE guesses and checks to get full credit.

5 SHOW ALL WORK on open-ended questions or else you'll lose valuable points!!!! If you use your graphing calculator, be sure to indicate clearly how you used it. This usually means you must show us what you put into the calculator ($y_1 = \ldots.$, $y_2 = \ldots.$) and sketch a graph with the window and important points labeled.

6 When you "finish" a problem, make sure you're really finished. Re-read the question again and MAKE SURE YOU HAVE FOLLOWED ROUNDING INSTRUCTIONS. Also make sure you answered the question they're asking for. This is important on ALL the questions (multiple choice AND open-ended). On the open-ended questions, circle your answer and make it obvious that it's your answer.

7 If you think some work is wrong, DON'T ERASE IT! Just cross it out with a single line and do the work you think is right.

8 If you finish early, DON'T JUST LEAVE! Hang out for a while. Put the test out of your mind and day dream or draw a picture. Then come back to the test and check every single problem again. Perhaps use a different strategy this time to make sure you get the same answer.

9 If you feel anxious, put your pen down and close your eyes and breathe. Remember: This isn't the only time you're allowed to take this Regents. You can take it again (even if you pass just fine) and get a better score if that's what you want to do.

Some <u>Very Valuable</u> Strategies for Multiple Choice Problems

Here are two VERY VALUABLE strategies that can be used on the multiple-choice questions. You can use them to DO the problems and/or you can use them to check answers that you already have.

<u>Strategy #1</u>: If you have variables in your question and in your answer choices, you can <u>pick any number for your variables</u>, plug them in, get an answer, and then plug them into your answer choices to see which one works. Look at the example below and then try some problems on your own.

EX:

13. If f and g are two functions defined by $f(x) = 3x + 5$ and $g(x) = x^2 + 1$, then $g(f(x))$ is
(1) $x^2 + 3x + 6$ (2) $9x^2 + 30x + 26$ (3) $3x^2 + 8$ (4) $9x^2 + 26$

Let's stick in $x = 2$ & see what we get.

$f(2) = 3 \cdot 2 + 5 = 11$

$g(11) = 11^2 + 1 = 122$

So we will put 2 in for x & pick the choice that gives us 122.

(1) $2^2 + 3 \cdot 2 + 6$ $= 16$ NO

(2) $9(2)^2 + 30(2) + 26$ $= 122$ yes!!!

(3) $3(2)^2 + 8$ $= 20$ No

(4) $9(2)^2 + 26$ $= 62$ No

<u>note</u>: Check <u>all</u> answers. Sometimes more than 1 answer works. Then just plug in another number.

Try Some:

5. Written in simplest form, the expression $\frac{x^2y^2 - 9}{3 - xy}$ is equivalent to
(1) -1 (2) $\frac{1}{3 + xy}$ (3) $-(3 + xy)$ (4) $3 + xy$

2. The expression $\frac{\sec \theta}{\csc \theta}$ is equivalent to
(1) $\sin \theta$ (2) $\cos \theta$ (3) $\frac{\sin \theta}{\cos \theta}$ (4) $\frac{\cos \theta}{\sin \theta}$

13. The expression $b^{-\frac{3}{2}}$, $b > 0$, is equivalent to

(1) $\frac{1}{(\sqrt[3]{b})^2}$ (2) $\frac{1}{(\sqrt{b})^3}$ (3) $-(\sqrt{b})^3$ (4) $(\sqrt[3]{b})^2$

15. The expression $\frac{\frac{1}{x}+\frac{1}{y}}{\frac{1}{x^2}-\frac{1}{y^2}}$ is equivalent to

(1) $\frac{xy}{y-x}$ (2) $\frac{xy}{x-y}$ (3) $\frac{y-x}{xy}$ (4) $y-x$

19. The expression $\sqrt[4]{16a^6b^4}$ is equivalent to

(1) $2a^2b$ (2) $2a^{\frac{3}{2}}b$ (3) $4a^2b$ (4) $4a^{\frac{3}{2}}b$

Strategy #2: You can often work backwards from your answer choices. Look at the example below and then try some on your own.

4. What is a positive value of x for which $9^{-\cos x} = \frac{1}{3}$?

(1) 30° (2) 45° (3) 60° (4) 90°

Work backwards + plug the answer choices in for x:

(1) $9^{(-\cos 30^\circ)} = \frac{1}{3}$ NO!

(2) $9^{(-\cos 45^\circ)} = \frac{1}{3}$ NO!

(3) $9^{(-\cos 60^\circ)} = \frac{1}{3}$ YES!

Strategy #3: Be clever with your calculator! Look at the example below.

Ex:

7. Which expression is equal to $\frac{2+\sqrt{3}}{2-\sqrt{3}}$?

(1) $\frac{1-4\sqrt{3}}{7}$ (2) $\frac{7+4\sqrt{3}}{7}$ (3) $1-4\sqrt{3}$ (4) $7+4\sqrt{3}$

Just put the expression (carefully) in your calc. Pay attention to ( )!

$(2+\sqrt{(3)}) \div (2-\sqrt{(3)}) = 13.92820\ldots$

Now find that answer in your answer choices.

$*(4)\ 7+4\sqrt{3} = 13.92820\ldots$

Try Some!

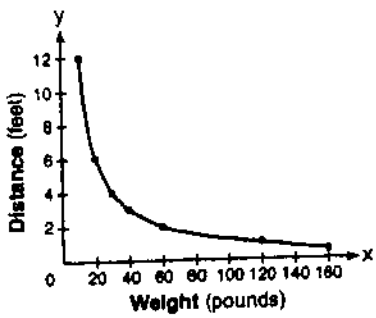
5. The expression $\frac{7}{2-\sqrt{3}}$ is equivalent to

(1) $14-7\sqrt{3}$ (2) $14+7\sqrt{3}$ (3) $\frac{2+\sqrt{3}}{7}$ (4) $\frac{14+\sqrt{3}}{7}$

12. The accompanying graph shows the relationship between a person's weight and the distance that the person must sit from the center of a seesaw to make it balanced.
Which equation best represents this graph?

(1) $y = 12x^2$ (3) $y = 2 \log x$

(2) $y = -120x$ (4) $y = \frac{120}{x}$



Put all these in [Y=] + look at graphs.

31. An acorn falls from the branch of a tree to the ground 25 feet below. The distance, S, the acorn is from the ground as it falls is represented by the equation $S(t) = -16t^2 + 25$, where t represents time, in seconds. Sketch a graph of this situation on the accompanying grid.

Calculate, to the *nearest hundredth of a second*, the time the acorn will take to reach the ground.