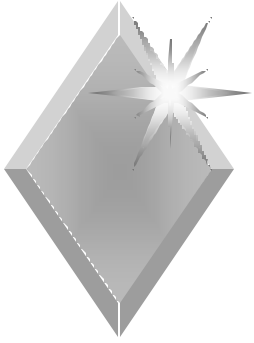
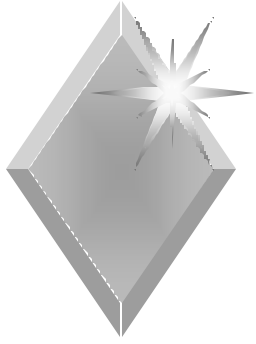


*The ASQ
Certification and
Recertification
Processes*



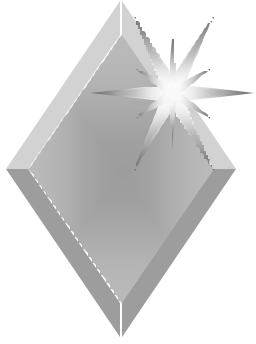
What is ASQ Certification?

**A formal recognition by ASQ
that an individual has
demonstrated a proficiency
within, and comprehension of,
a specified Body of Knowledge
at a given point in time**



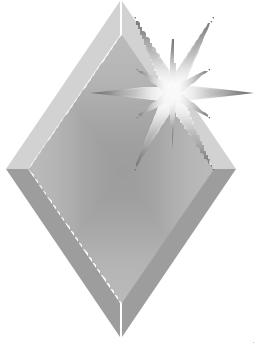
Key Benefits of Certification to Members

- **Gain new skills and upgrade proficiency**
- **Source of professional and personal pride**
- **Investment in career**
- **Mark of technical excellence**
- **Current with emerging technologies**
- **Knowledgeable employees that are able to assure product/service quality**



Key Benefits of Certification to Organizations

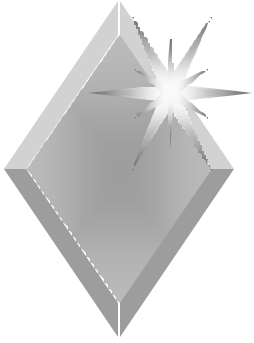
- ❖ **Investment in the company's future**
- ❖ **Perfect and share new techniques in the workplace**
- ❖ **Discriminator in the marketplace**



History of Certification

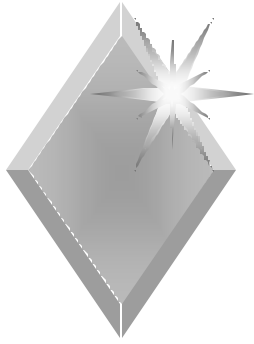
- ✍ **Certified Quality Engineer 1968**
- ✍ **Certified Quality Technician 1970**
- ✍ **Certified Reliability Engineer 1972**
- ✍ **Certified Mechanical Inspector 1984**
- ✍ **Certified Quality Auditor 1987**
- ✍ **Certified Quality Manager 1995**
- ✍ **Certified Software Quality Engineer 1996**
- ✍ **CQA-Hazard Analysis and Critical Control Point (HACCP) 2000**
- ✍ **Certified Quality Improvement Associate 2001**
- ✍ **Six Sigma Black Belt 2001**
- ✍ **CQA-Biomedical 2002**
- ✍ **Certified Calibration Technician 2002**

(Will be available June 2003)



Certification Programs

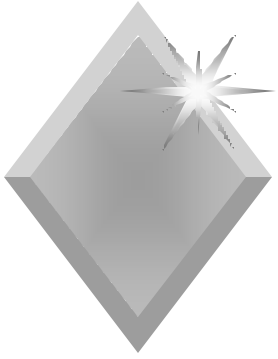
- ◆ **Quality Engineer (CQE)**
- ◆ **Reliability Engineer (CRE)**
- ◆ **Quality Auditor (CQA)**
- ◆ **CQA - HACCP**
- ◆ **CQA-Biomedical**
- ◆ **Quality Technician (CQT)**
- ◆ **Mechanical Inspector (CMI)**
- ◆ **Software Quality Engineer (CSQE)**
- ◆ **Quality Manager**
- ◆ **Certified Quality Improvement Associate (CQIA)**
- ◆ **Six Sigma Black Belt (CSSBB)**
- ◆ **Certified Calibration Technician**



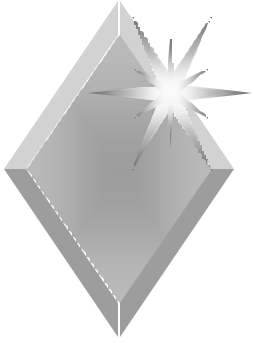
2002 Salary Survey

**December 2002, Quality Progress
in Canadian Dollars*

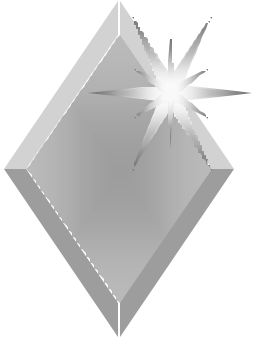
	Average Salary – with Cert.	Average Salary – no Cert.	Percentage Difference
Quality Engineer	\$62,341	\$59,800	+4.2%
Quality Technician	\$39,299	\$40,876	-3.9%
Reliability Engineer	\$91,500	\$74,195	+23.3%
Quality Auditor	\$58,808	\$57,612	+2.1%
Software Engineer	\$78,428	\$58,000	+35.2%



ASQ Certifications
- Exam Development
Process

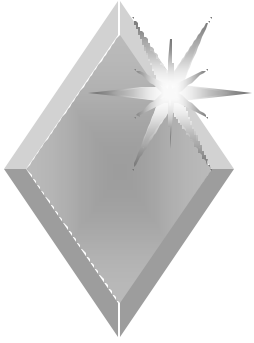


All certification programs go through the same process - whether it's a “new” or “add-on” exam.



Initial Activities

- ◆ **Sponsoring group comes forward with an idea for a certification program**
- ◆ **Survey Developed with help from an Outside Measurement Expert**
- ◆ **Advisory Committee identifies typical job responsibilities and knowledge base required**
- ◆ **Advisory committee work results in a questionnaire**
- ◆ **Job Analysis is conducted every five years to ensure the validity of the exam programs.**

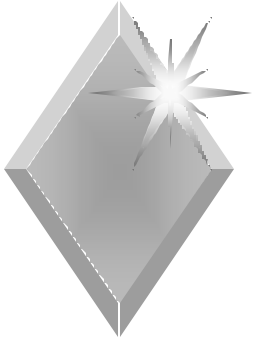


BOK Development

Results of the Job Analysis are used to develop the Body of Knowledge

Body of Knowledge Committee:

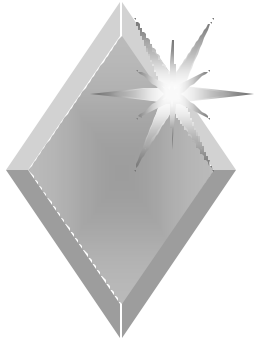
- ◆ **Consists of about 12 subject matter experts**
- ◆ **Two day workshop**
- ◆ **Primary task is to translate the job analysis results into meaningful categories that can be tested**



Item Writing

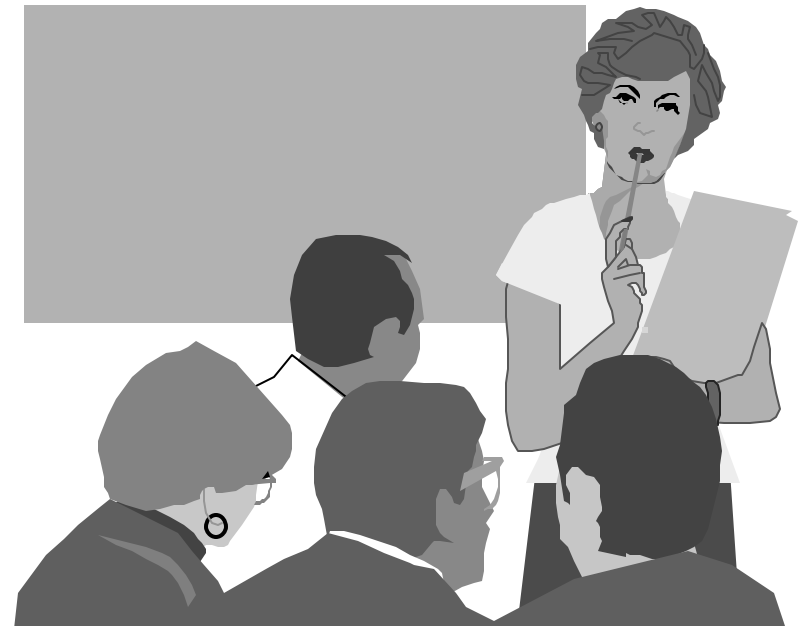
- ◆ **24 certified members are trained in item writing**
- ◆ **Items written in each area of the Body of Knowledge**
- ◆ **350 items developed during 2 day session**

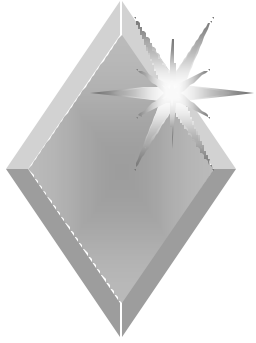




Item Review

- ◆ **One 2-day workshop per year**
- ◆ **12 certified members review each question for:**
 - **Accuracy**
 - **Clarity**
 - **Appropriateness**
 - **Diversity**

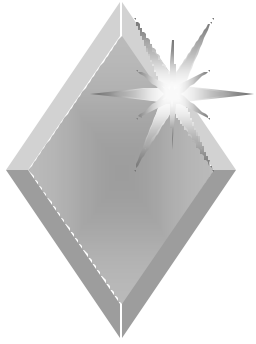




Exam Review

- ◆ **12 certified members take each exam before formal administration**
- ◆ **Every item on exam is reviewed once more**
- ◆ **Flow of the entire exam is reviewed**

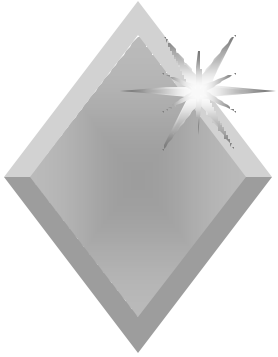




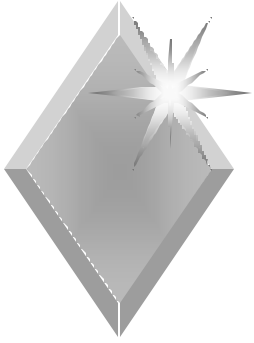
Cut Score Study

- ◆ **12 certified members establish the expected standard of performance for the exam, then estimate the difficulty of each question in the test. Their collective scores determine the recommended pass point for the exam.**



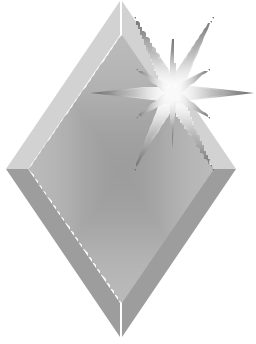


ASQ Certifications
- The Scoring Process



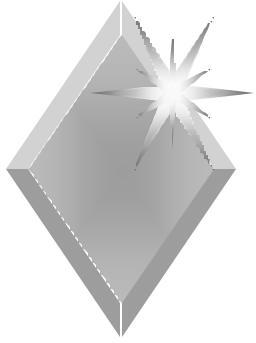
Cut Score Study

- ◆ **12 certified volunteers help determine the passing score by taking the exam**
- ◆ **Process is managed by professional psychometrician at ASQ Headquarters**
- ◆ **Panel discusses characteristics of “borderline candidates” in terms of their knowledge and skill level on various topics in the BOK**
- ◆ **These characteristics are documented and used as a “standard of performance expectation”**



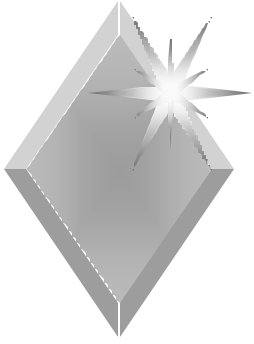
Cut Score Study Elements

- ◆ **The distinction regarding borderline candidates is key to understanding the cut-score process, as it ultimately draws a very fine line between candidates who are qualified to be certified and those who are not.**



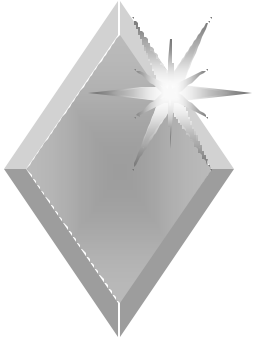
Constructed Response Scoring

- ◆ **For Quality Manager Exam only**
- ◆ **24 Certified Quality Manager volunteers**
- ◆ **2 day scoring workshop**
- ◆ **Each constructed response item scored by two certified volunteers**
- ◆ **Answer Sheets are scanned in batches**
- ◆ **A frequency distribution of candidate scores is created (sample shown is on a 200 item test)**
- ◆ **EXPECTATION: 4th & 5th quintile groups will score higher than the other three groups on individual items (test questions)**



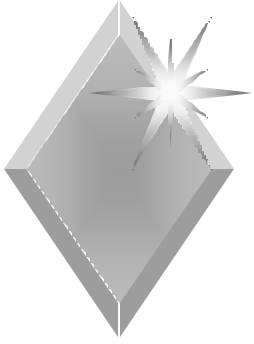
Test Analysis-Item By Item

- ◆ **Statistics on individual test questions are then reviewed to make sure they are working as intended**
- ◆ **A good test question will show higher scores for candidates who do better on the test as a whole**



Problem Item

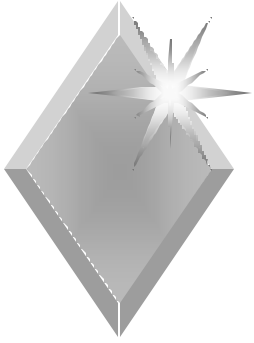
- ◆ A “problem” test question will show higher scores for candidates who do worse on the test as a whole, suggesting that one of the alternate choices might also be keyable.
- ◆ These “problem” test questions are reviewed to determine whether to treat the question as a “score-all” - in which case all candidates will receive credit for the question, regardless of how they answered it.



Scaling & Equating

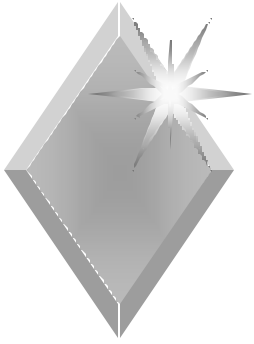
Once the test questions have been reviewed and any statistical anomalies have been resolved, the current version of the test is compared to the previous version.

Candidates shouldn't worry about whether they will get a hard test or an easy test. If they get a hard test, they won't need to get as many questions right to meet the standard. If they get an easy test, they will have to get more of the easy questions right in order to meet the standard.

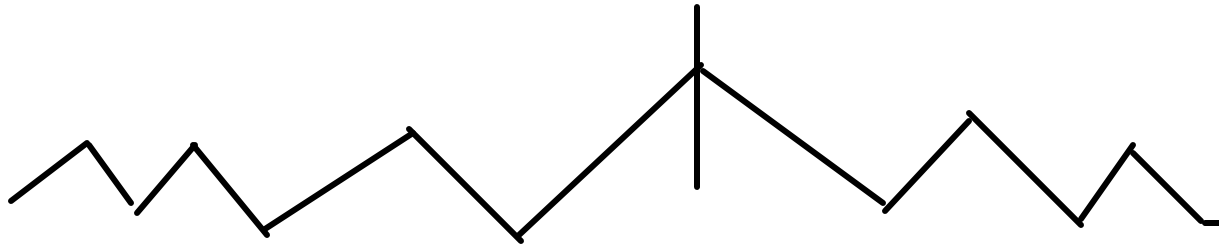


Scaling & Equating

To ensure comparability between forms of a test, the tests are compared statistically. If the mean score is higher on the current test than on the previous one, it might be because the current test is easier than the previous one.



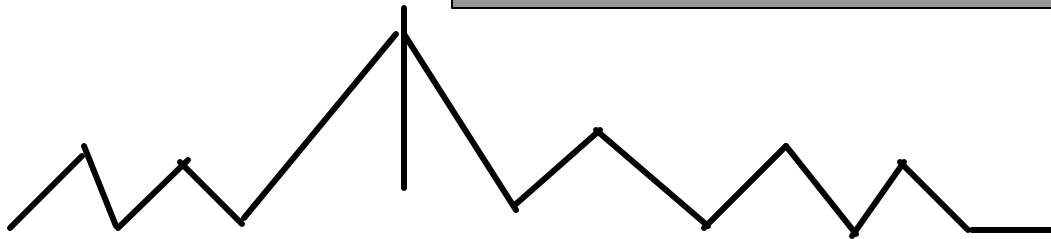
Previous Exam



mean score = 85

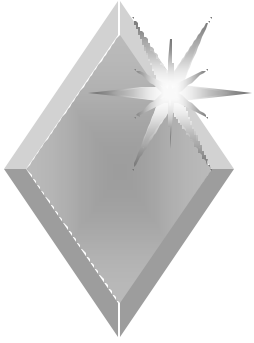
**Easier test?
Candidates
better prepared?**

Current Exam



mean score = 80

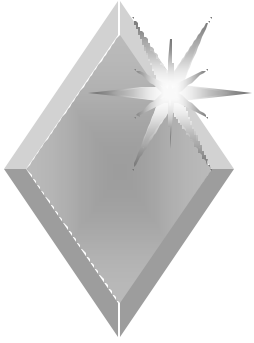
**Harder test?
Candidates less
able?**



Scaling & Equating

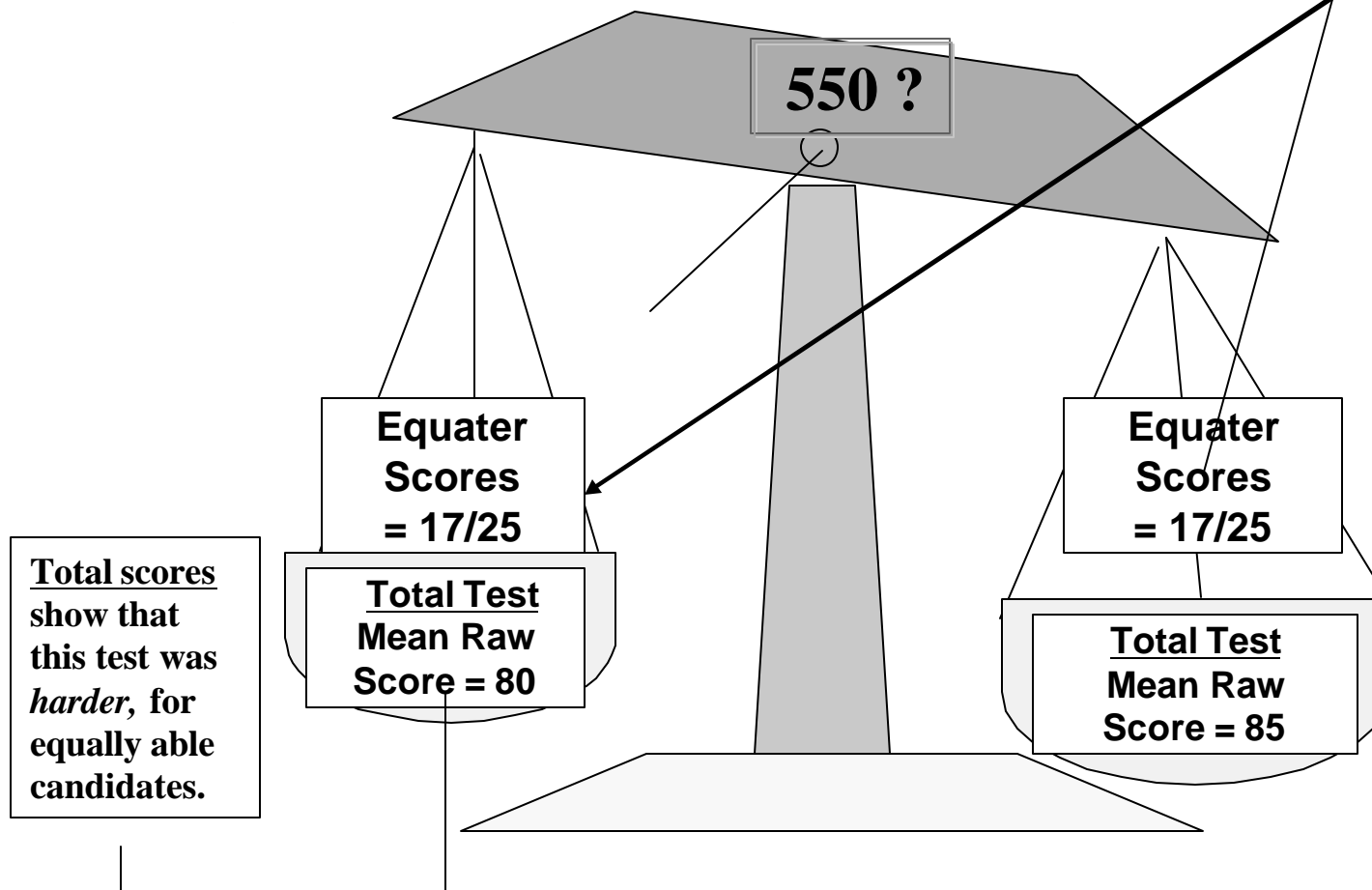
What if the tests are equally difficult and the candidates were just better prepared for the previous exam?

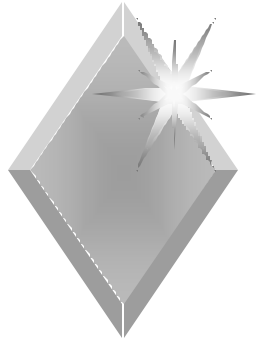
To measure candidate comparability, we use test questions that have performed well in the previous exam. These questions, called “equaters,” allow us to compare how two different groups of candidates perform on the same questions.



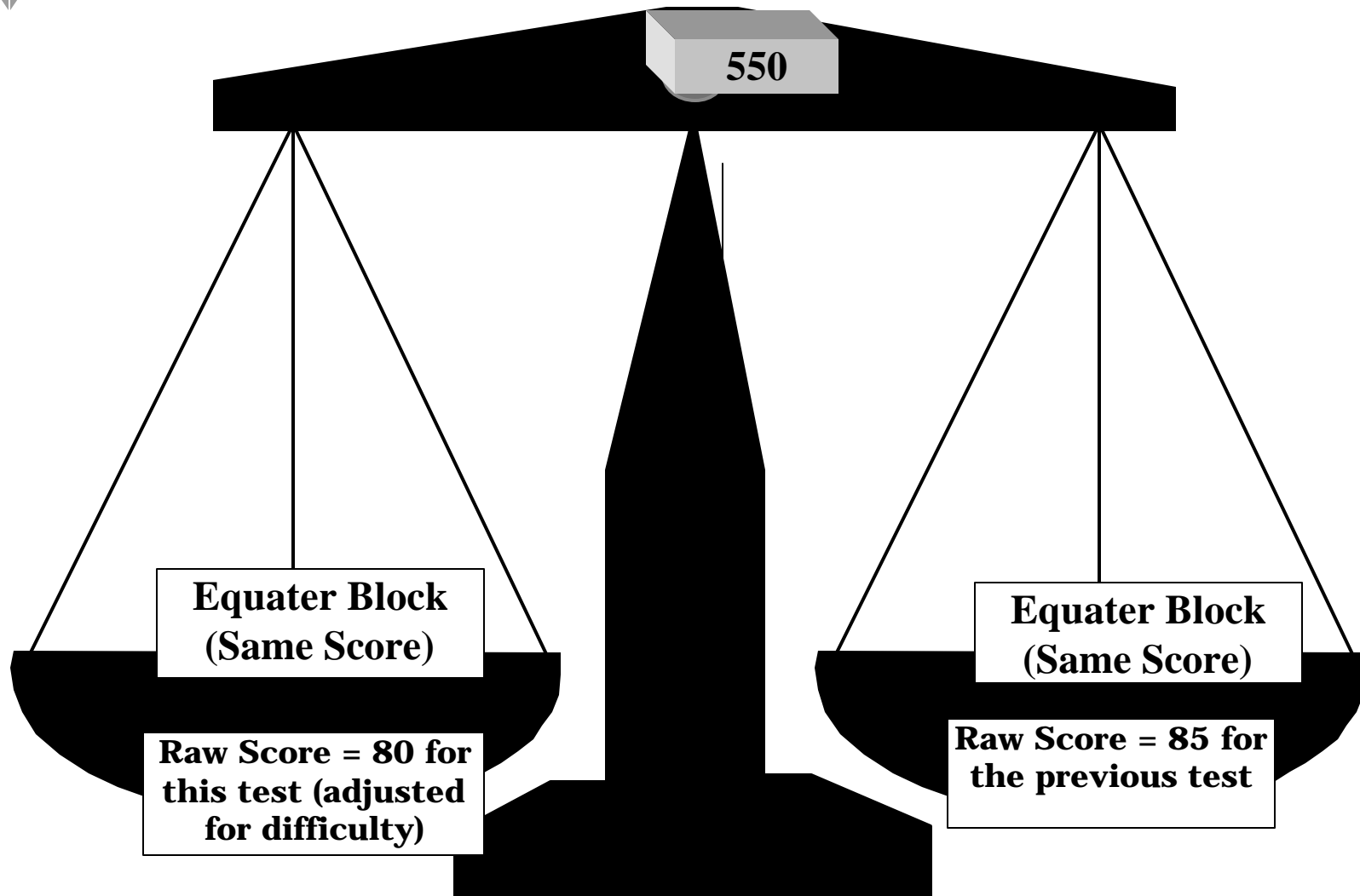
Comparison of Difficulty

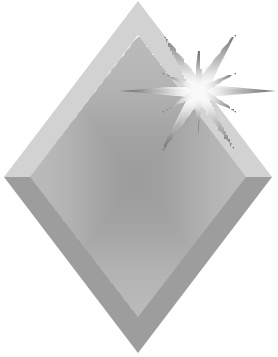
Equater scores show that the Candidates are equal in ability.



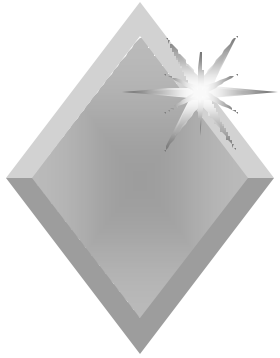


Test is Adjusted for Difficulty:



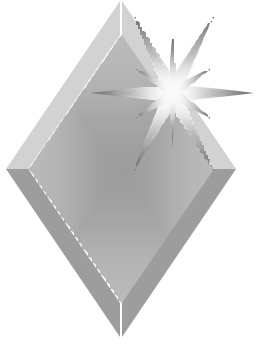


ASQ Certification
- Volunteering



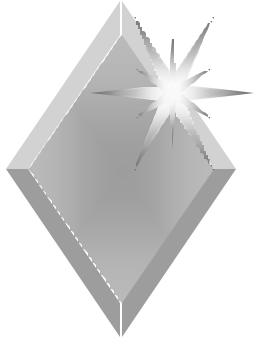
*The participation of over 50
volunteers is required in the
development of each exam.*





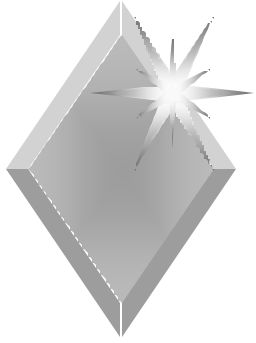
*Participation is required in
the following workshops:*

- ◆ **Item Writing (write exam questions)**
- ◆ **Item Review (review the questions)**
- ◆ **Exam Review (take the actual exam & score it before official administration)**
- ◆ **Constructed Response Scoring
(Manager exam only)**



Selection Criteria for Volunteers

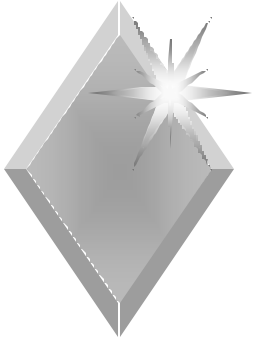
- ◆ **Certified in specific exam**
- ◆ **Ability to attend complete 2 day workshop session**
- ◆ **To know their strengths as it relates to the BOK.**
- ◆ **Good team and communication skills**
- ◆ **Exam teams chosen with mix of new and experienced volunteers**
- ◆ **Not teaching/authoring exam review materials**



Benefits of Volunteering

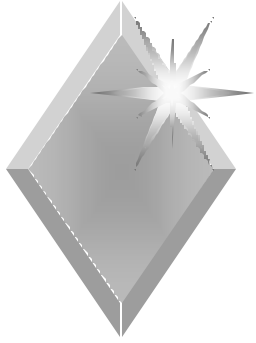
- ◆ **One recertification unit per day of workshop**
- ◆ **Expenses Reimbursed**
- ◆ **Visit ASQ HQ**
- ◆ ***HUGE AMOUNTS OF FUN***





Benefits of Volunteering

- ◆ **Peer Networking**
- ◆ **Reinforce and expand subject knowledge**
- ◆ **Learn New Techniques from other Professionals**



Are You Certified As:

◆ **CQA**

◆ **CQE**

◆ **CRE**

◆ **CMI**

◆ **Quality
Manager**

◆ **CQA-
Biomedical**

◆ **CQA-HACCP**

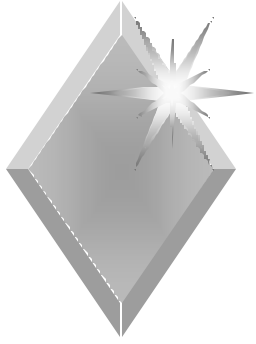
◆ **CQIA**

◆ **CSQE**

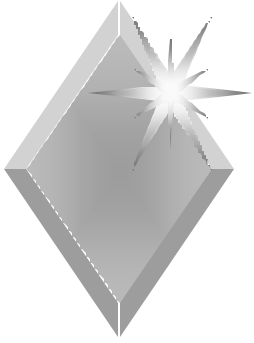
◆ **CQT**

◆ **Six Sigma Black
Belt**

◆ **CCT**

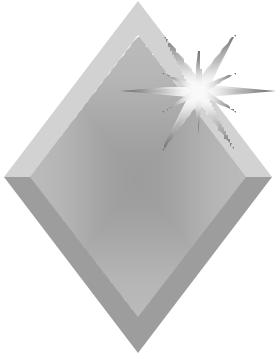


***NEW
VOLUNTEERS
ARE NEEDED!***

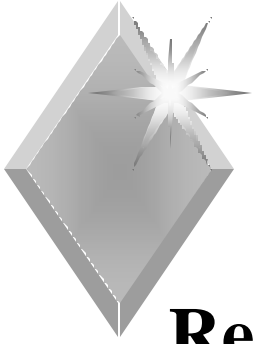


How Do You Get Involved?

- ◆ **Be Certified in exam of interest**
- ◆ **E-mail Your Resume to Headquarters:
mmartin@asq.org**
- ◆ **Indicate exam and workshop of interest**
- ◆ **Mary will submit your resume to the
Liaison responsible for your certification**



ASQ Recertification



**Recertification verifies that you have maintained
the same knowledge level you demonstrated
when you originally passed the exam**

Who must certify?

Manager

CQE

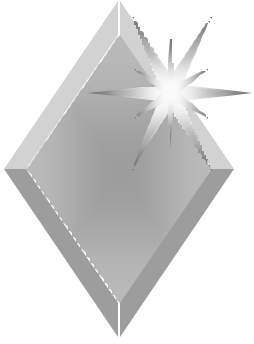
CQA

CRE

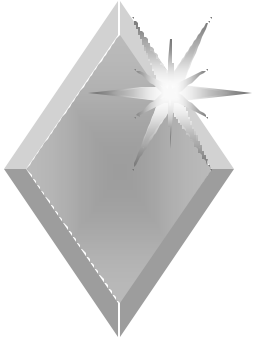
CSQE

CCT

Six Sigma Black Belt

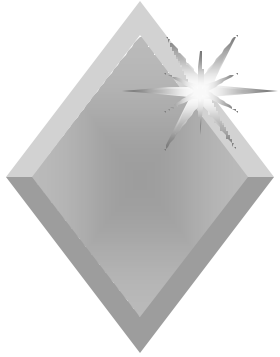


In a recent survey of people who had recertified, 96% said that the recertification program is very understandable and easy to use!



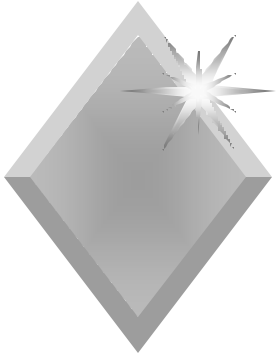
Certification Requirements

- ◆ **18 RU credits over three years**
- ◆ **Credits earned through:**
 - ✓ **Employment**
 - ✓ **Professional Development**
 - ✓ **Education**
 - ✓ **Society Involvement**



See how simple it is!

Full-time employment	10.8RU
AQC attendance (once)	3.0RU
Company-sponsored training (e.g., project management, Seminars, etc.)	4.0RU
Section Meetings (2 mtgs./yr.)	<u>2.7RU</u>
TOTAL:	20.5



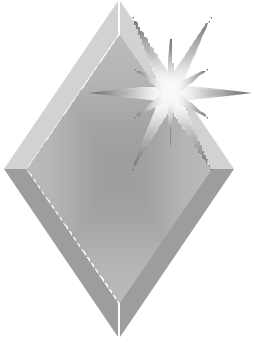
Retire your Certification!

You must be unemployed

&

at least 55 years old

***Contact the Recertification coordinator
for complete details at 1-800-248-1946***



*Apply for Any Exam or
Recertify On-Line!*

Visit us at www.asq.org