

**Exhibit 13.1: TIMSS Advanced 2015 Advanced Mathematics Items for Concurrent Calibration**

| Item Type            | Points | Items Released in 2008 |           | Items Common in 2008 and 2015 |           | Items Introduced in 2015 |           | Total      |            |
|----------------------|--------|------------------------|-----------|-------------------------------|-----------|--------------------------|-----------|------------|------------|
|                      |        | Items                  | Points    | Items                         | Points    | Items                    | Points    | Items      | Points     |
| Multiple-Choice      | 1      | 25                     | 25        | 20                            | 20        | 35                       | 35        | 80         | 80         |
| Constructed Response | 1      | 13                     | 13        | 5                             | 5         | 22                       | 22        | 40         | 40         |
|                      | 2      | 2                      | 4         | 6                             | 12        | 13                       | 26        | 21         | 42         |
| <b>Total</b>         |        | <b>40</b>              | <b>42</b> | <b>31</b>                     | <b>37</b> | <b>70</b>                | <b>83</b> | <b>141</b> | <b>162</b> |

**TIMSS Advanced 2015 Advanced Mathematics Items for Concurrent Calibration by Content and Cognitive Domains**

| Advanced Mathematics Content Domains | Items Released in 2008 |        | Items Common in 2008 and 2015 |        | Items Introduced in 2015 |        | Total |        |
|--------------------------------------|------------------------|--------|-------------------------------|--------|--------------------------|--------|-------|--------|
|                                      | Items                  | Points | Items                         | Points | Items                    | Points | Items | Points |
| Algebra                              | 13                     | 14     | 12                            | 14     | 25                       | 29     | 50    | 57     |
| Calculus                             | 16                     | 16     | 9                             | 12     | 25                       | 31     | 50    | 59     |
| Geometry                             | 11                     | 12     | 10                            | 11     | 20                       | 23     | 41    | 46     |

| Advanced Mathematics Cognitive Domains | Items Released in 2008 |           | Items Common in 2008 and 2015 |           | Items Introduced in 2015 |           | Total      |            |
|----------------------------------------|------------------------|-----------|-------------------------------|-----------|--------------------------|-----------|------------|------------|
|                                        | Items                  | Points    | Items                         | Points    | Items                    | Points    | Items      | Points     |
| Knowing                                | 16                     | 16        | 11                            | 12        | 21                       | 23        | 48         | 51         |
| Applying                               | 14                     | 14        | 17                            | 21        | 23                       | 27        | 54         | 62         |
| Reasoning                              | 10                     | 12        | 3                             | 4         | 26                       | 33        | 39         | 49         |
| <b>Total</b>                           | <b>40</b>              | <b>42</b> | <b>31</b>                     | <b>37</b> | <b>70</b>                | <b>83</b> | <b>141</b> | <b>162</b> |