

S₁ standards of **M**₃ mathematical **P**₃ practice

Skilled students of mathematics **make sense of problems** by . . .

- explaining the problem to themselves
- planning a solution pathway
- comparing them to similar problems
- **persevering** in solving them
- checking to see if answers make sense

Skilled students of mathematics **represent and solve problems** by . . .

- **using symbols** to represent the situation
- manipulating the symbols **using the rules of algebra**
- **using proper units**

Skilled students of mathematics **create reasonable arguments and kindly critique the reasoning of others** by . . .

- **using definitions** and **previous results**
- **breaking the problem into cases**
- **using counter examples**
- **justifying their conclusions**
- responding to the arguments of others by **asking useful questions to improve arguments**

Skilled students of mathematics **use the math they have learned** by . . .

- **solving problems in everyday life**
- **simplifying complicated situations** and making the required revisions
- **using diagrams, tables, formulas, and flowcharts** to describe numerical relationships
- **drawing conclusions from data**
- **checking results** for reasonableness

Skilled students of mathematics **use appropriate tools** by . . .

- **considering available tools** (paper, pencil, rulers, protractors, calculators, spreadsheets, computer software) when solving a mathematical problem
- **using tools fitting the situation**
- **using technology to explore and deepen understanding**

Skilled students of mathematics **attend to precision** by . . .

- **communicating precisely** to others
- **using clear definitions** in their work and discussions with others
- **stating the meaning of symbols**
- **carefully labeling axes and symbols**
- **calculating accurately**

Skilled students of mathematics **look for and make use of structure** by . . .

- **looking for patterns or structure**
- **recognizing the significant aspects of mathematical problems**
- **shifting perspective** as required
- **seeing complicated situations as being made of multiple parts**

Skilled students of mathematics **look for regularity in repeated reasoning** by . . .

- **noticing repeated calculations**
- **looking for general methods and shortcuts**
- **using patterns in procedures to develop general formulas**
- **attending to details and checking for reasonableness**

