# Grade 8: Smarter Balanced Assessment Item Illustrating 8.NS.A.2



Domain: Number System

Cluster and/or Standard: 8.NS.A.2 - Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g., $\pi^2$). *For example, by truncating the decimal expansion of √2, show that √2 is between 1 and 2, then between 1.4 and 1.5, and explain how to continue on to get better approximations*.

Rigor/Complexity[1]: Conceptual Level 2

Calculator Needed: No

**Example Stem:** Select **all** expressions that have a value greater than 5.

A. $2\pi$
B. $\frac{10}{\sqrt{3}}$
C. $3 + \sqrt{2}$
D. $5.7 - \frac{6}{\sqrt{20}}$

Answer Key: A, B

Elaboration on Alignment:
The magnitude of numbers and expressions has been an important idea in mathematics starting when students first start counting in kindergarten or earlier. It is important for students to have opportunities to reason conceptually about magnitude of numbers and expressions leveraging the grade level aspects of the number system.

[1] A Framework to Evaluate Cognitive Complexity in Mathematics Assessments