Number

Activity 3 Assessment

Estimating Square Roots of Non-Perfect Squares

Content: Calculating Square Roots of Non-Perfect Squares			
Uses models or known number facts to determine whether a whole number is a perfect square "I can shade a 7-by-7 grid to make a square with area 49, so 49 is a perfect square. I can't shade a square with area 50, so 50 is not a perfect square."	Uses a calculator to determine whether a rational number is a perfect square "The square root of 27.04 is a terminating decimal, 5.2, so 27.04 is a perfect square."	Identifies whole numbers that are non-perfect squares and estimates their square roots to the nearest whole number "27 is between 5 × 5 = 25 and 6 × 6 = 36, so it is not a perfect square. It is closer to 25 than 36, so the square root is about 5."	Identifies rational numbers that are non-perfect squares and estimates their square roots to the nearest tenth "34.6 is between 5 × 5 = 25 and 6 × 6 = 36. It is quite close to 36, so the square root will be quite close to 6, like 5.9."
Observations/Documentation			

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Activity 3 Assessment

Estimating Square Roots of Non-Perfect Squares

Competency: Mental Mathematics and Estimation			
Determines the approximate square root of a non-perfect square using a calculator "I entered the square root of 7 into my calculator to get about 2.6."	Estimates the square root of a non-perfect square by identifying the two perfect squares it is closest to "18 is between 16 and 25, so the square root of 18 is between 4 and 5."	Uses number sense to make a more precise estimate by identifying the relative position of the non-perfect square between the perfect squares "18 is about one-fourth of the way between 16 and 25, so its square root will be about one-fourth of the way between 4 and 5: 4.25."	Chooses the best estimation strategy to determine a given square root "If I estimate $\sqrt{\frac{2}{3}}$ by identifying the closest perfect squares for the numerator and denominator, I get $\sqrt{\frac{1}{4}}$. But $\frac{1}{4}$ is a lot less than $\frac{2}{3}$, so I think it's better to estimate $\frac{2}{3}$ as about 0.64 instead."
Observations/Documentation			