

**UNIT 4 PRE-TEST
ADVANCED 7TH GRADE MATH (MELOTT)**

Use a separate sheet of paper to show all work. When finished, check your work against my key (posted online, do your scales, report the score to me). Make sure everything is filled out completely. Place the pre-test/work and scales into your pre-test folder. The pre-test score is NOT counted against you. It is simply used to measure growth.

1. Determine whether the following fraction will convert to a terminating or repeating decimal.

Example: $\frac{1,452,027}{2.4 \times 10^{312}}$ $\frac{6}{2.0 \times 10^2} = \frac{6}{200} = 0.03$ $\frac{1,452,027}{2.4} = 605,011.25$ Terminative (1pt)

2. Simplify. Express your answer as a rational number.

$\frac{-4x^2y^4 - 2x^2y^5}{2x^3y^7} = -\frac{6x^2y^5}{2x^3y^7} = 3x^{-1}y^{-2} = \frac{3y^2}{x}$ (1pt)

3. Factor completely:

$9ax^2 - 3a = 3a(3x^2 - 1)$ (1pt)

4. Simplify and represent as a rational number:

$\frac{-36m^{-3}a^{-2}}{-8am^{-9}} = -\frac{9m^6a^{-3}}{2} = -\frac{9m^6}{2a^3}$ (1pt)

5. Simplify and represent as a rational number:

$\frac{-84a^4c}{-36a^2c^2e} = -\frac{7a^2c^{-1}}{3c} = -\frac{7a^2}{3ec}$ (1pt)

6. Factor completely:

$-72a^8 + 50x^4 = -2(36a^8 - 25x^4) = 2(-36a^8 + 25x^4) = -2(6a^4 - 5x^2)(6a^4 + 5x^2)$ (1pt)

7. Write the fractions as equivalent fractions with the least common denominator:

$\frac{-3}{8y} - \frac{y}{-5x} - \frac{17}{20} \rightarrow \frac{-3x}{40xy} + \frac{y^2}{40xy} - \frac{17}{20} = \frac{-3x + y^2 - 17 \cdot 2x}{40xy} = \frac{-34x + y^2}{40xy}$ (3pts)

8. Add. Express your answer as a mixed number or a proper fraction:

$-7\frac{2}{3} + 5\frac{7}{8} = -\frac{56}{8} + \frac{49}{8} = -\frac{7}{8} = -1\frac{19}{24}$ (1pt)

9. Subtract. Express your answer as a rational number.

$\frac{3c}{-4} - \frac{7c}{10} = -\frac{3c}{4} - \frac{7c}{10} = -\frac{15c}{20} - \frac{14c}{20} = -\frac{29c}{20}$ (1pt)

10. Solve using permutations or combinations:

You and 9 of your favorite friends get in line to see a movie at Crocker Park. How many different ways can you get into line? $10! = 9 \cdot 8 \cdot 7 \cdot 6 \cdot 5 \cdot 4 \cdot 3 \cdot 2 \cdot 1 = 362,880$ ways