Unit 1 : Algebra Skills
Topic: Algebra Skills Review
Objective: SWBAT review the topics covered in this unit by completing various problems.

NO CALCULATOR ALLOWED
Directions: Read each question carefully and SHOW ALL WORK!

1) Simplify each of the following:

a) $\left(\dfrac{2x^{-4}y^3}{8xz^2}\right)^{-2}$

b) $x^2 - (x+5)(x-3) - (2-x)^2$

c) $(x^{-2} + x^3)(6 - 2x)$

d) $\dfrac{(9x+1)^2}{3x}$

e) $\dfrac{16x^{2/3}y^{-1/3}}{48x^{-4/3}y^2}$

f) $\left(-\dfrac{5}{x}\right)^2 \left(\dfrac{2}{x}\right)^5$

2) Multiply:

a) $\left(-x^{\frac{2}{3}}y^2\right)\left(3x^{\frac{1}{2}}y^{-\frac{4}{5}}\right)$

b) $\sqrt[5]{x}\left(2x^2 + 6\sqrt{x}\right)$

3) Factor each of the following completely:

a) $x^3(3x-2)^4 - 4(3x-2)^5$

b) $27x^3 + 64y^6$

c) $6a^2 - ay - 2y^2$

d) $18x^8y - 15y^3$

4) Simplify each of the following:

a) $\dfrac{\dfrac{4}{x} - \dfrac{8}{x^2}}{1 - \dfrac{2}{x}}$

b) $\dfrac{\dfrac{1}{x} + \dfrac{7}{x+1}}{\dfrac{1}{x^2 - 1}}$

4) Find the partial fraction decomposition for : $\dfrac{1-x}{2x^2+x}$

6) Find the partial fraction decomposition for: $\dfrac{x^3+x^2+2x-2}{x^2-1}$

7) Find the partial fraction decomposition for: $\dfrac{5x+4}{x^2+x-20}$