

MATH 111-05 (Kunkle), Quiz 2
10 pts, 10 minutes

Name: _____
Jan. 23, 2018

1 (10 pts). Find and cancel the common factor: $\frac{(x-1)^3 + 1}{x}$

1.(Source: 1.5.17) The third row of Pascal's triangle is 1 3 3 1. Use this to expand

$$(x-1)^3 = x^3 + 3x^2(-1) + 3x(-1)^2 + (-1)^3 = x^3 - 3x^2 + 3x - 1.$$

Now simplify the fraction

$$\begin{aligned}\frac{(x-1)^3 + 1}{x} &= \frac{x^3 - 3x^2 + 3x - 1 + 1}{x} \\ &= \frac{x^3 - 3x^2 + 3x}{x} \\ &= \frac{x(x^2 - 3x + 3)}{x} \\ &= x^2 - 3x + 3.\end{aligned}$$