

Each problem is worth 5 points. For full credit indicate clearly how you reached your answer.

1. Factor  $x^3y - 9xy^3$  completely relative to the integers.

$$\frac{xy(x^2 - 9y^2)}{xy(x-3y)(x+3y)}$$

Excellent

$x$  and  $y$  are common factors so they can be factored out first and then you have  $x^2 - 9y^2$  which is a difference of squares and so you are able to factor that one more time to come up with  $xy(x-3y)(x+3y)$

2. Subtract  $\frac{3x+8}{4x^2} - \frac{2x-1}{x^3} - \frac{5}{8x}$  and reduce completely.

$$\begin{aligned} \frac{3x+8}{4x^2} - \frac{2x-1}{x^3} - \frac{5}{8x} &= \frac{(3x+8) \cdot 2x}{4x^2 \cdot 2x} - \frac{2x-1}{x^3} \cdot \frac{8}{8} - \frac{5}{8x} \cdot \frac{x^2}{x^2} \\ &= \frac{6x^2 + 16x - 16x + 8 - 5x^2}{8x^3} \\ &= \frac{x^2 + 8}{8x^3} \end{aligned}$$

Great