all done

INTERMEDIATE ALGEBRA

GPS # 20 **5.4 FACTORING TRINOMIALS** **NAME:** Paarul Patel

Good work!

Useful Guidelines:

To factor $ax^2 + bx + c$:

Step 1: Find pair whose product is ax^2.
For example: $3x^2 + 7x + 2 = (3x + ...)(x + ...)$

Step 2: Find pair whose product is c.
For example: $3x^2 + 7x + 2 = (3x + 2)(x + 1)$? or $3x^2 + 7x + 2 = (3x + 1)(x + 2)$?

Step 3: Check which one will produce the middle term bx. That's the right factoring.
If there is no such middle term, the polynomial cannot be factored; it is called prime.

Factor each polynomial. 1st term is same so 2nd term 1 & 2 don't matter

a) $x^2 + 3x + 2 =$

$(x + 1)(x + 2)$ — $+x$, $+2x$; needs $+3x$

b) $p^2 - 4p + 3 =$

$(p - 3)(p - 1)$ — $-3p$, $-p$; needs $-4p$

c) $2x^2 + 7x + 3 =$

$(2x + 1)(x + 3)$ — $+x$, $+6x$; needs $+7x$

1st term is not same so 1 2 3 (2nd term) does matter check both 1 at time

d) $3y^2 + 13y + 4 =$

$(3y + 1)(y + 4)$ — y, $12y$

guess all possible for: $(3y+2)(y+2)$ — $2y$, $6y$ — not posible so chang 2nd term

e) $3r^2 + 14r + 5 =$

5, 8, 1

$(3r - 1)(r + 5)$ — $-1r$, $+15r$

Eval: $3r^2 - 5 - r - 5 \neq 3r^2 + 14r + 5$
Not equal so it calls (PRIME) (can't factor)

f) $x^2 - 3x + 2 =$ check by eye

$(x - 1)(x - 2)$

make sure to evaluate back to get solution

g) $3m^2 + 12m - 15 =$

$3(m^2 + 4m - 5)$

$3(m + 5)(m - 1)$ — $5m$, $-m$; need $+4m$

h) $-12y^3 - 8y^2 + 4y =$

$= -4y(3y^2 + 2y - 1)$

$= -4y(3y - 1)(y + 1)$ — $-y$, $3y$; needs $+2y$

i) $6a^2 + 5ab - 4b^2 =$

4b 2b
b 6b

$(3a + 4b)(2a - b)$ — $8ab$, $3ab$

j) $2z^4 - 8z^2 + 6 =$

$2(z^4 - 4z^2 + 3)$

$2(z^2 - 3)(z^2 - 1)$ — $-3z^2$, z^2