

$$2) \frac{X}{Y} = \frac{(6\sqrt{3})}{(21+12\sqrt{3})} \times \frac{(21-12\sqrt{3})}{(21-12\sqrt{3})} = \frac{126\sqrt{3} - 216}{(21)^2 - (12\sqrt{3})^2} = \frac{126\sqrt{3} - 216}{441 - 432}$$

$$= \frac{126\sqrt{3} - 216}{9}$$

$$= \frac{9(14\sqrt{3} - 24)}{9}$$

\* 4<sup>th</sup> Exercise:

$$1) N(x) = 4x^2 - (2x-3)^2 - 2(x-1)(3-2x) - 9$$

$$= 4x^2 - [4x^2 - 12x + 9] - 2[3x - 2x^2 - 3 + 2x] - 9$$

$$= 4x^2 - 4x^2 + 12x - 9 - 2[-2x^2 + 5x - 3] - 9$$

$$= 12x - 18 + 4x^2 - 10x + 6$$

Thus,  $N(x) = 4x^2 + 2x - 12$

$$2) N(x) = 4x^2 - (2x-3)^2 - 2(x-1)(3-2x) - 9$$

$$= 4x^2 - 9 - (2x-3)^2 + 2(x-1)(2x-3)$$

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

$$= (2x-3)[2x+3 - (2x-3) + 2(x-1)]$$

$$= (2x-3)[2x+3 - 2x+3 + 2x-2]$$

$$= (2x-3)(2x+4)$$

Thus,  $N(x) = 2(2x-3)(x+2)$

$$3) N(-2) = 2(2(-2)-3)(-2+2)$$

$$= 0$$

Thus,  $-2$  is a root since  $N(-2) = 0$

$$4) R(x) = (2m+1)x^2 - 3mx - 4$$

a)  $-1$  is a root.

then  $R(-1) = 0$

so,  $(2m+1)(-1)^2 - 3m(-1) - 4 = 0$

$$2m+1 + 3m - 4 = 0$$

$$5m - 3 = 0$$

Thus,  $m = \frac{3}{5}$

P-3.