

P.102 #22

known  $\begin{cases} f(-2) = -19 \\ f(1) = 2 \end{cases}$

$$f(x) = \frac{(x-1)(x+2)}{d(x)} q(x) + r(x)$$

must be linear  
since degree  $< 2$   
(less than divisor)

$$f(x) = (x-1)(x+2) q(x) + ax+b$$

zero ↓  
 $f(-2) = a(-2) + b$

$$f(1) = a + b$$

$$f(-2) = -2a + b$$

$$2 = a + b \text{ ①}$$

$$-19 = -2a + b \text{ ②}$$

$$\text{①} - \text{②}$$

sub  $a=7$  into ①

$$21 = 3a$$

$$2 = 7 + b$$

$$\boxed{a=7}$$

$$\boxed{b=-5}$$

∴ remainder is

$$\boxed{7x - 5}$$