

$$\boxed{53} \quad f(x) = 2x^3 + 3x^2 - 8x + 3$$

(a) If $\frac{p}{q}$ is a rational zero, then p is a factor of 3, which are ± 1 and ± 3 and q is a factor of 2, which are ± 1 or ± 2 . Thus, any rational zero must be in the list $\pm \frac{1}{2}$, ± 1 , $\pm \frac{3}{2}$, or ± 3 .

From *Figure 53* we see that there are three rational zeros of $\frac{1}{2}$, 1, and -3 .

x	$f(x)$	x	$f(x)$
$\frac{1}{2}$	0	$\frac{3}{2}$	$\frac{9}{2}$
$-\frac{1}{2}$	$\frac{15}{2}$	$-\frac{3}{2}$	15
1	0	3	60
-1	12	-3	0

Figure 53

(b) The complete factored form is $f(x) = 2(x - \frac{1}{2})(x - 1)(x + 3)$.