

Use the Remainder Theorem to find the remainder for each of the following divisions:

1.  $\frac{x^3 - 2x^2 + 2}{x - 3}$

2.  $\frac{2x^4 - 2x^3 + 20}{x + 1}$



3. Is  $(r - 4)$  a factor of  $6r^4 - 17r^3 - 46r^2 + 77r - 20$ ? Find out by using the Factor theorem.

4. Is  $(3r - 1)$  a factor of  $6r^4 - 17r^3 - 46r^2 + 77r - 20$ ? Find out by using the Factor theorem.

5. Write a polynomial function in standard form that meets the stated conditions.

a. The zeros are -5, 7 and -4.

b. The zeros are  $\frac{1}{2}$ , 2 and -1.

6. Is  $r = -4$  a zero of  $2r^3 - 13r^2 + 23r - 12$ ?      7. Find the value of  $w$  so that  $\frac{x^2 - wx - 3w}{x + 4}$  has a remainder of **1**.

8. Find the value of  $k$  so that  $\frac{kx^2 - x - k}{x - 3}$  has a remainder of 12.

1)  $R = 11$

2)  $R = 24$

3) Find  $F(4)$ . Yes.

4) Find  $F\left(\frac{1}{3}\right)$ . Yes

5a)  $x^3 + 2x^2 - 43x - 140$

5b)  $2x^3 - 3x^2 - 3x + 2$

6) No ( $r = 4$  is, but not  $r = -4$ )

7)  $w = -15$

8)  $k = \frac{15}{8}$