VMA | Verkefni 9 | STÆF2AM05 fjarkennsla

Deildu í dæmi 1 - 5:

1. $(x^2 + x + 2) : (x + 2)$

$$
\begin{array}{l}
(x+2) \quad x - 1 \\
\qquad x^2 + x + 2 \\
\quad -(x^2 + 2x) \\
\qquad -x + 2 \\
\quad -(-x - 2) \\
\qquad 4
\end{array}
$$

$Q(x) = x - 1$

Rest er 4

2. $(x^2 - 2x + 4) : (x + 1)$

$$
\begin{array}{l}
(x+1) \quad x - 3 \\
\qquad x^2 - 2x + 4 \\
\quad -(x^2 + x) \\
\qquad -3x + 4 \\
\quad -(-3x - 3) \\
\qquad 7
\end{array}
$$

$Q(x) = x - 3$ og Rest $= 7$

3. $(x^3 - x^2 + x - 2) : (x + 1)$

$$
\begin{array}{l}
(x+1) \quad x^2 - 2x + 3 \\
\qquad x^3 - x^2 + x - 2 \\
\quad -(x^3 + x^2) \\
\qquad -2x^2 + x - 2 \\
\quad -(-2x^2 - 2x) \\
\qquad 3x - 2 \\
\quad -(3x + 3) \\
\qquad -5
\end{array}
$$

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

Rest $= -5$

4. $(x^3 - 2x^2 + x - 5) : (x - 1)$

$$
\begin{array}{l}
(x-1) \quad x^2 - x \\
\qquad x^3 - 2x^2 + x - 5 \\
\quad -(x^3 - x^2) \\
\qquad -x^2 + x - 5 \\
\qquad -x^2 + x \\
\qquad -5
\end{array}
$$

$Q(x) = x^2 - x$

Rest $= -5$

5. $(x^4 - 2x^2 + 1) : (x - 3)$

$$
\begin{array}{l}
(x-3) \quad x^3 + 3x^2 + 7x + 21 \\
\qquad x^4 - 0 \cdot x^3 - 2x^2 + 0x + 1 \\
\quad -(x^4 - 3x^3) \\
\qquad 3x^3 - 2x^2 + 1 \\
\quad -(3x^3 - 9x^2) \\
\qquad 7x^2 + 1 \\
\quad -(7x^2 - 21x) \\
\qquad 21x + 1 \\
\quad -(21x - 63) \qquad 64
\end{array}
$$

$Q(x) = x^3 + 3x^2 + 7x + 21$

Rest er 64

6. Þáttaðu margliðuna $P(x) = x^2 - 5x + 6$ og finndu síðan núllstöðvar hennar.

$(x-2)(x-3) = 0$

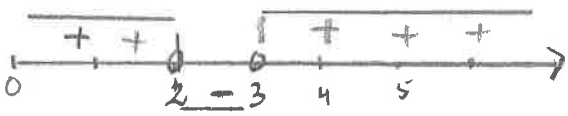
$x - 2 = 0$ $\quad x - 3 = 0$

$x = 2$ $\quad x = 3$

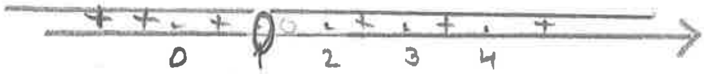
Núllstöðvar eru $x = 2$ og $x = 3$

Gerðu formerkjamyndir fyrir margliðunar í dæmi 7 - 9.

7. $P(x) = x^2 - 5x + 6$.



8. $P(x) = x^2 - 2x + 1$.



$(x-1)(x-1) = 0$

$x = 1$ er núllstöð

9. $P(x) = x^2 + 2x - 8$.

$(x-2)(x+4) = 0$

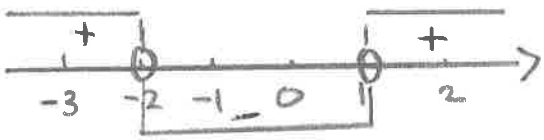
$x = 2$ og $x = -4$

eru núllstöðvar

10. Leystu ójöfnuna $x^2 + x - 2 > 0$ með hjálp formerkjamyndar.

Skilaðu svarinu með biltáknum.

$(x-1)(x+2) > 0$



Núllstöðvar $x = 1$

$x = -2$

Svar: $x \in]-\infty, -2[\cup]1, \infty[$