

2.21 Homework: Polynomials exam review

1. Which expression is equivalent to $2(5x - 2)(x + 1)(x - 3)$?

- (a) $5x^3 - 24x^2 - 22x - 12$
- (b) $10x^3 - 24x^2 - 22x + 6$
- (c) $2x^3 - 24x^2 - 22x + 12$
- (d) $10x^3 - 24x^2 - 22x + 12$

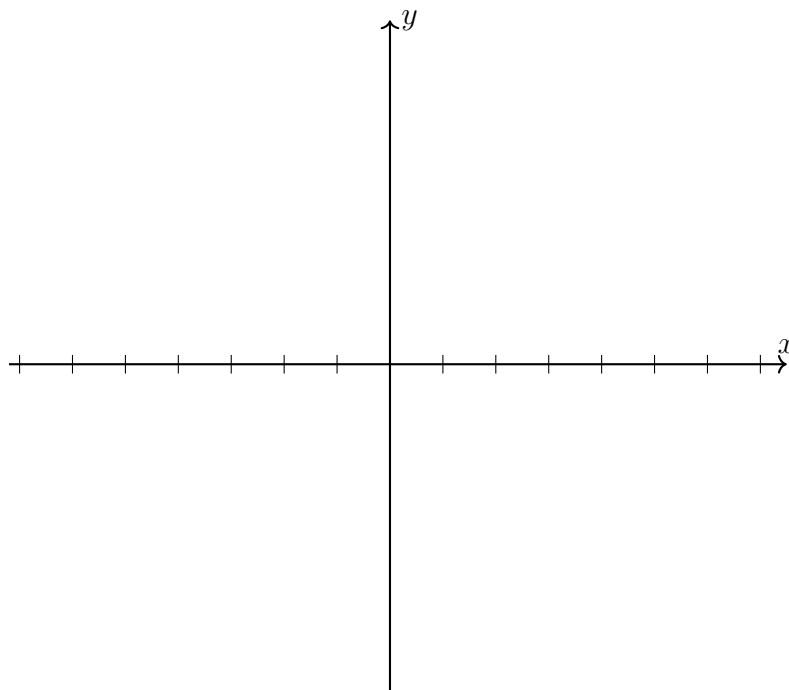
2. The polynomial p is a function of x . The graph of p has three zeros at 7 , $\frac{2}{3}$, and -1 . Select **all** the expressions that could represent p .

- | | |
|---|---|
| (a) $(x - 7)(x - \frac{2}{3})(x + 1)$ | (e) $(x - 7)(x + \frac{2}{3})(x - 1)$ |
| (b) $(x - 7)(3x - 2)(x - 1)$ | (f) $(x - 7)(3x - 2)(x + 1)$ |
| (c) $3(x - 7)(x - \frac{2}{3})(x + 1)$ | (g) $3(x - 7)(x - \frac{2}{3})(x - 1)$ |
| (d) $3x(x + 7)(x + \frac{2}{3})(x - 1)^2$ | (h) $3x(x + 7)(x - \frac{2}{3})(x + 1)^2$ |

3. Let f be a polynomial function of x where $f(x) = 4x^3 - 11x^2 - 6x + 9$. If $x - 3$ is a factor of f , write an equation for f as a product of linear factors.

4. Let P be a polynomial function of x , and $P(x) = x^3 + dx^2 - 5x + 6$. If $x - 1$ is a factor of P , what is the value of d ? Explain or show how you know.

5. Let $j(x) = -x(x + 4)(x - 3)^2$ be a polynomial function.



- (a) Sketch a graph of the function.
- (b) Name all horizontal and vertical intercepts of the graph.
- (c) State the end behavior of j .