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Quiz 2

This quiz is graded out of 14 marks. No books, watches, notes or cell phones are allowed. You must show all your work, the correct answer is worth 1 mark the remaining marks are given for the work. If you need more space for your answer use the back of the page.

Question 1. Add, subtract or multiply and simplify completely.

a. *(2 marks)* $7x^4+3x^2+2x-(18x^4-5x^2+x)$

$= 7x^4+3x^2+2x-18x^4+5x^2-x$

$= -11x^4+8x^2+x$

b. *(2 marks)* $-4x^2(3x^3-12x^2-6)$ $= -12x^5+48x^4+24x^2$

c. *(2 marks)* $(3x+4)(4x+3)$

$= 12x^2+9x+16x+12$

$= 12x^2+25x+12$

d. *(3 mark)* $(2x+3)(x+1)^3$

$= (2x+3)(x+1)[(x+1)(x+1)]$

$= (2x+3)(x+1)[x^2+x+x+1]$

$= (2x+3)[(x+1)(x^2+2x+1)]$

$= (2x+3)[x^3+2x^2+x+x^2+2x+1]$

$= (2x+3)[x^3+3x^2+3x+1]$

$= 2x^4+6x^3+6x^2+2x+3x^3+9x^2+9x+3$

$= 2x^4+9x^3+15x^2+11x+3$

Question 2. *(5 marks)* Divide by long division to find the quotient and remainder:

$$\frac{x^5-2x^3-3x^2+9}{x^2-2} = x^3-3+\frac{3}{x^2-2}$$

$$\begin{array}{r} x^3-3 \\ x^2+0x-2 \overline{)\, x^5+0x^4-2x^3-3x^2+0x+9} \\ -(x^5+0x^4-2x^3) \\ \hline 0-3x^2+0x+9 \\ -(-3x^2+0x+6) \\ \hline 3 \end{array}$$

quotient ↑ x^3-3

remainder ← 3