

Math SL PROBLEM SET 22

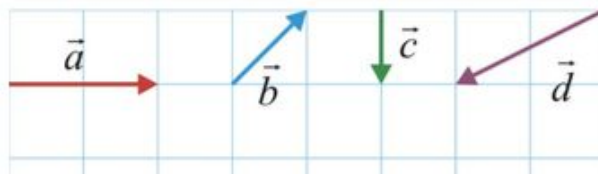
Section A (Short Answer)

1. **(A1.1 - E) (CA)** Given the sequence $45, -30, 20, -\frac{40}{3}, \dots$ *(Cirrito 8.2.4, p263)*

- Find the 8th term
- Find the sum of the first 8 terms
- Find the sum of an infinite number of terms of this sequence

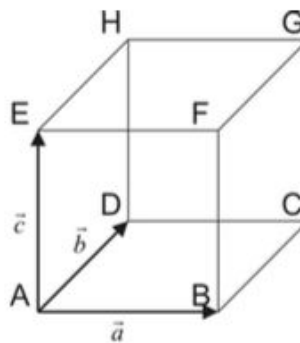
2. **(V4.1 - N)** The following 2 questions deal with vectors. *(Cirrito 12.3, p415)*

- Use the following diagram to compute and draw the required resultant vectors:



- $\vec{a} + \vec{b} + \vec{c}$
- $\vec{b} + 2\vec{c} + \vec{d}$
- $\vec{a} + 3\vec{c} - 2\vec{d}$

- A cube is constructed from three vectors, \vec{a} and \vec{b} and \vec{c} as shown on the figure. Express, in terms of vectors \vec{a} , \vec{b} , and \vec{c} :



- \vec{AF}
- \vec{CF}
- \vec{AG}
- \vec{BH}

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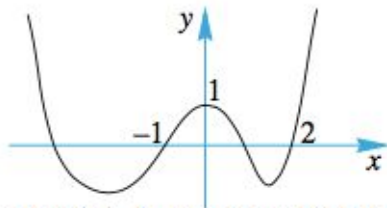
3. **(SP5.6 - R) (CI)** You are given two events, A and B where $P(A|B) = 0.30$, $P(B|A) = 0.60$ and $P(A \cap B) = 0.18$ *(Cirrito 15.2, p508)*

- Find $P(A)$
- Are events A and B independent? Why/why not?
- Find $P(B \cap A')$

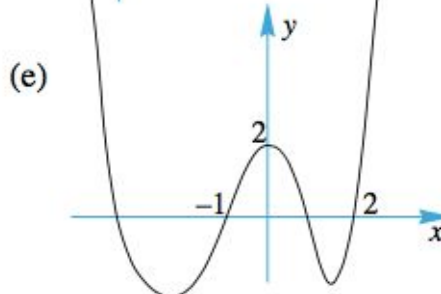
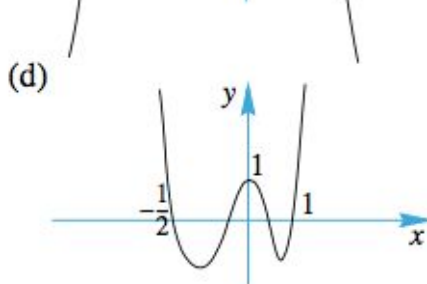
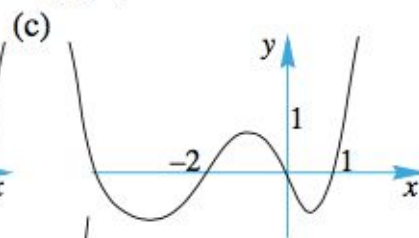
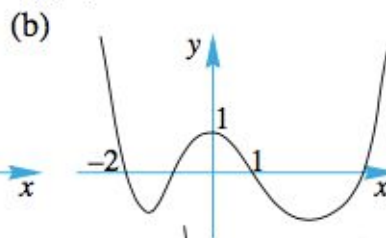
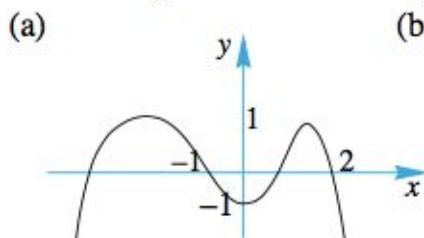
4. **(A1.1 - E) (CA)** An arithmetic series has a first term of 2 and a fifth term of 30. A geometric series has a common ratio of -0.5. The sum of the first two terms of the geometric series is the same as the second term of the arithmetic series. What is the first term of the geometric series?
(Cirrito 8.2.3, p261)

5. **(F2.3 - R) (CI)** Transformation of functions *(Cirrito 6.1, p167; Cirrito 6.2 p177; Cirrito 6.3, p183)*

The diagram shows the graph of the function $y = f(x)$.



Find the equation in terms of $f(x)$ for each of the following graphs.



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6. **(A1.3 - N) (CA)** For the following binomial distributions find, *(Cirrito 4.1, p95)*
- The coefficient of the x^6 term in the expansion of $(2x - 3)^9$.
 - The coefficient of the x^3 term in the expansion of $(3x - 1)^7$.
7. **(A1.2 - N, F2.7 - E) (CI)** Solve $\log_3(x - 2) + \log_3(x - 4) = 2$ for x . Use your TI-84 to graph and verify. Explain why there is only one solution for x . *(Cirrito 7.4, p221)*
8. **(T3.1 - N) (CA)** Find the shaded area in the diagram. The point O is the center of the circle and AT is a tangent to the circle. *(Cirrito 9.7, p309)*

