

$$A = \{a, b, c, d\}$$

$$B = \{b, c, d\}$$

$$C = \{c, d, e\}$$

$$D = \{e, f, g\}$$

$$E = \{e, f, g\}$$

1 pt. 8. What is the power set of B?

$$\{\emptyset, \{b\}, \{c\}, \{d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{b, c, d\}\}$$

1 pt. 9. What is the cardinality of the power set of A?

$$2^4 = 16$$

1 pt. 10. What is the Cartesian product, $B \times D$?

$$\{(b, e), (c, e), (d, e), (b, f), (c, f), (d, f), (b, g), (c, g), (d, g)\}$$

0.5 pt. 11. True or **False**: $\forall x \in \mathbb{R} ((x^2 = 0) \vee (x^2 \geq 1))$

0.5 pt. 12. **True** or False: $\forall x \in \mathbb{Z} ((x^2 = 0) \vee (x^2 \geq 1))$

0.5 pt. 13. **True** or False: $\forall x \in \mathbb{N} ((x^3 = 0) \vee (x^3 \geq 1))$

0.5 pt. 14. True or **False**: $\forall x \in \mathbb{Z} ((x^3 = 0) \vee (x^3 \geq 1))$