hw5

Topic: {{title}}
Date: {{date:MMM d, YYYY}}
Course: C241
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Question one

(a) - $2, 4$

(b) - $2, 4$

(c) - $1/2$

(d) - $1/2$

(e) - -1

(f) - $1, 2, 3$

(g) - 3

(h) - $1, 8, 27$

(i) - 1

(j) - No example exists, because the empty set contains no elements

Question two

(a) - false

(b) - true

(c) - false

(d) - false

(e) - true

(f) - true

(g) - true

(h) - true

(i) - false

(j) - false

(j) - true

(k) - true

Question one

(a) - true, because $5 \in A \wedge 6 \in B$

(b) - false, because $max(P) == 13$

(c) - false, because $\{1\} \in S$**, but** $\{1\} \notin D$

(d) - true, because a set is defined by it's distinct elements, so order does not matter.

(e) - true, because a set is defined by it's distinct elements, so $\{1, 5, 1, 3, 1, 5, 5, 1, 3\}$ **boils down to C**

(f) - true, because $|\emptyset| == 0$**, while** $|\{\emptyset\}| == 1$

Question one

(a) - $\{1, 3, 5, 7, 9, 10\}$

(b) - $\{4\}$

(c) - $\{0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$

(d) - $\emptyset$

(e) - $\{1, 3\}$

(f) - $\{1, 3, 5\}$

(g) - $\{1, 2, 3, 4, 5\}$

(h) - $\{2, 4\}$

(i) - $\emptyset$

(j) - $\emptyset$

(k) - $\{0, 2, 4, 6, 8\}$

Question six

Set B is defined as $\{2n \mid n \in \mathbb{W} \wedge 2n < 10\}$

Question seven

(a) - $\{c\}$

(b) - $\{'pete', 'jake', 'haha'\}$

(c) - $\{\{a\}, \{a, b\}\}$

(d) - $\{s \mid s \in Str \wedge \frac{|s|}{4} \in \mathbb{N}\}$

(e) - A

(f) - $\{a\}$

(g) - $\{'pete'\}$

(h) - $\{\{a, b\}\}$

Question eight

(a) - true

(b) - false

(c) - false

(d) - true

(e) - false

(f) - true

(g) - false

(h) - false

(i) - false

(j) - false

(k) - false

(l) - true

(m) - true

(n) - false

(o) - false

(p) - true

(q) - true

(r) - true

Question nine

(a) - false, because $u \in A$, but $u \notin V$

(b) - true, because 4 is an even number.

(c) - false, because $'hi' \in S_{even}$, but $'hi' \notin S_4$

(d) - false, because $b \not\subset A$

(e) - true, because $\{a, b\} \subset A$

(f) - true, because $\{a\} \subset A$

(g) - false, because $\{a, b, c\} \in Y$, but $\{a, b, c\} \notin X$

Question ten

(a) - 5

(b) - 3

(c) - 4

(d) - 4

(e) - 1000

(f) - 0

(g) - infinite

(h) - 8

(i) - 32