

DBM2033 DISCRETE MATHEMATICS
REVISION SET 2

1. Let $f(x) = 2x - 1$, $g(x) = 3x$ and $h(x) = x^2 + 1$. Compute the following:
 - (a) $f(x + 1)$
 - (b) $(g \circ h)(24)$
 - (c) $g(3a)$
2. Determine inverse function for the following:
 - (a) $f(x) = \frac{-3}{x-3}$
 - (b) $g(x) = \frac{12-3x}{4}$
3. Identify these values:
 - (a) $\lfloor -3.4 \rfloor \times \lceil 2.81 \rceil$
 - (b) $\lceil \lfloor -0.82 \rfloor \times 0.3 \rceil$
4. Given three sets, P, Q and R such that
$$P: \{x: x \text{ is a natural number between } 10 \text{ and } 16\}$$
$$Q = \{y: y \text{ is an even number between } 8 \text{ and } 20\}$$
$$R = \{7, 9, 11, 14, 18, 20\}$$
Find
 - (a) $Q - R$
 - (b) $R - P$
5. Are these equivalence relations on $\{0, 1, 2\}$?
 - (a) $\{(0, 0), (1, 1), (2, 2)\}$
 - (b) $\{(0, 0), (1, 1), (2, 2), (0, 1), (1, 2)\}$