11.95

24S. RIEMANN SUMS
ANSWERS

A-24S.1 (a) $8 \leq \iint_D (5-y)\,dA \leq 40$.
(b) Lower sum = 16; Upper sum = 32.
(c) $\iint_D (5-y)\,dA = 24$.

A-24S.2 See EMVC A–7.1 (page 156).

A-24S.3 See EMVC A–7.2 (page 156).

A-24S.4 See EMVC A–7.5 (page 157).

A-24S.5 (a) Minimum = -11, Maximum = 16, $A(D) = 16$; $-176 \leq \iint_D (5-y)\,dA \leq 256$.
(b) Lower sum = $(-10)(4) + (-8)(4) + (-11)(4) + (-9)(4) = -152$.
Upper sum = $(0)(4) + (16)(4) + (-8)(4) + (8)(4) = 64$.
(c) Riemann sum = $(-7)(4) + (1)(4) + (-11)(4) + (-3)(4) = -80$.
(d) Riemann sum = $(0)(4) + (0)(4) + (-8)(4) + (-8)(4) = -64$.