Panel 1 (top left):

$$\sum \text{ (end number above, Start number below) Formula}$$

$$\sum_{i=1}^{4} i^2 = (1)^2 + (2)^2 + (3)^2 + (4)^2$$

$1, 2, 3$

Panel 2 (top right):

27) $F(x) = 2x + 5$ $[0, 2]$ $n = 4$

$x_0 \quad x_n$

$\Delta x = \dfrac{2-0}{4} = \dfrac{1}{2}$

Right

$$\sum_{i=1}^{4} \left[2(x_i) + 5 \right] \Delta x = 15$$

$$\left[\left(2(\tfrac{1}{2})+5\right) + \left(2(1)+5\right) + \left(2(\tfrac{3}{2})+5\right) + \left(2(2)+5\right) \right] \tfrac{1}{2}$$

(red: 6, 7, 8, 9)

$\dfrac{x_n - x_0}{n}$

$x_0 = 0$
$x_1 = \tfrac{1}{2}$
$x_2 = 1$
$x_3 = \tfrac{3}{2}$
$x_4 = 2$

$$\sum_{i=1}^{4} \left[2(x_{i-1}) + 5 \right] \Delta x$$

$i=1, \; x_0 \rightarrow 2(0) + 5 = 5$
$i=2, \; x_1 \rightarrow 2(\tfrac{1}{2}) + 5 = 6$
$i=3, \; x_2 \rightarrow 2(1) + 5 = 7$
$i=4, \; x_3 \rightarrow 2(\tfrac{3}{2}) + 5 = 8$

$$\left[5 + 6 + 7 + 8 \right] \tfrac{1}{2} = 13$$

$x_{i-1} \quad x_i$

Panel 3 (bottom left):

31) $F(x) = \cos x$ $\left[0, \tfrac{\pi}{2}\right]$ $n = 4$

$x_0 = 0$ $x_4 = \tfrac{\pi}{2}$

$\Delta x = \dfrac{\tfrac{\pi}{2} - 0}{4} = \tfrac{\pi}{8}$

$$\sum_{i=1}^{4} \cos x_i \, \Delta x$$

$x_0 = 0$
$x_1 = \tfrac{\pi}{8}$
$x_2 = \tfrac{\pi}{4}$
$x_3 = \tfrac{3\pi}{8}$
$x_4 = \tfrac{\pi}{2}$

Rt: $\tfrac{\pi}{8}\left[\cos\tfrac{\pi}{8} + \cos\tfrac{\pi}{4} + \cos\tfrac{3\pi}{8} + \cos\tfrac{\pi}{2}\right]$

.791

Lt: $\tfrac{\pi}{8}\left[\cos 0 + \cos\tfrac{\pi}{8} + \cos\tfrac{\pi}{4} + \cos\tfrac{3\pi}{8}\right]$

1.183

Panel 4 (bottom right):

33)

$$\sum_{i=1}^{4} F(x_i) \Delta x$$

$\Delta x = 1$

$x_0 = 0$
$x_1 = 1$
$x_2 = 2$
$x_3 = 3$
$x_4 = 4$

$\left[F(x_1) + F(x_2) + F(x_3) + F(x_4) \right] \Delta x$
$\left[F(1) + F(2) + F(3) + F(4) \right] 1$
$\left[3 + 4 + 4.5 + 5 \right] 1$

16.5 = rt hand

Lt: $\left[F(0) + F(1) + F(2) + F(3) \right] 1$
$\left[1 + 3 + 4 + 4.5 \right] 1 = 12.5$