

$$\text{Total Area: } 4y(2x+3) + x(2y+2)$$

$$= 8xy + 12y + 2xy + 2x$$

$$= \underline{10xy + 2x + 12y}$$

Polynomials

Performance Task

$$\text{Area shaded: } y(y+2+y) + y(x+1)$$

$$= y(2y+2) + y(x+1)$$

$$= 2y^2 + 2y + yx + y$$

$$= \underline{2y^2 + xy + 3y}$$

$$\text{Area to be covered: } (10xy + 2x + 12y) - (2y^2 + xy + 3y)$$

$$= 10xy + 2x + 12y - 2y^2 - xy - 3y$$

$$= 9xy + 2x + 9y - 2y^2$$

$$\boxed{-2y^2 + 9xy + 2x + 9y}$$

∴ The simplified expression for the surface area that Al has to cover is

$$-2y^2 + 9xy + 2x + 9y.$$