Per: _____ ☐

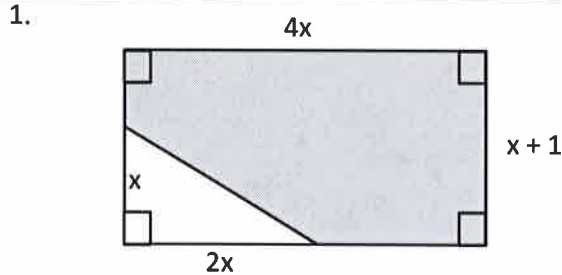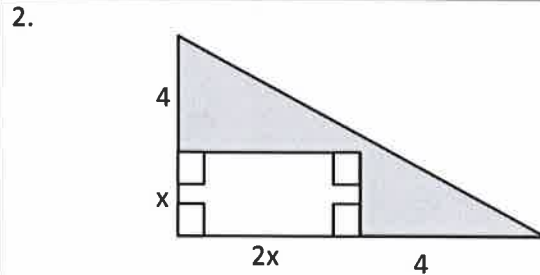## AP-3 Polynomials as Areas

Find the area of each shaded region. Be sure to show all your work and logic clearly. Diagrams are not drawn to scale.

1.

4x

x + 1

x

2x

Work: $A = 4x(x+1) - \frac{1}{2}x(2x)$

$= 4x^2 + 4x - x^2$

Shaded Area: $3x^2 + 4x$

2.

4

x

2x
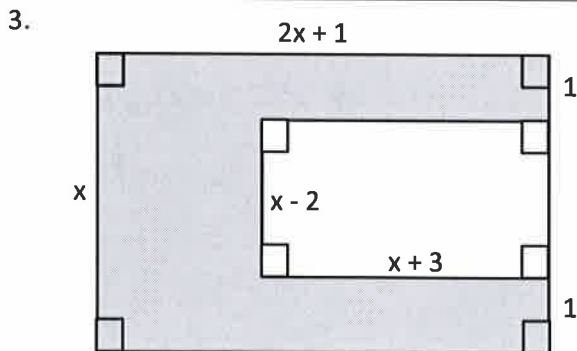
4

Work:
$A = \frac{1}{2}(x+4)(2x+4) - x(2x)$

$= \frac{1}{2}(2x^2 + 12x + 16) - 2x^2$

$= x^2 + 6x + 8 - 2x^2$

$= -x^2 + 6x + 8$

	2x	4
x	$2x^2$	$4x$
4	$8x$	16

Area: $-x^2 + 6x + 8$

3.

2x + 1

1

x

x - 2

x + 3

1

Work: $A = x(2x+1) - (x-2)(x+3)$

$= 2x^2 + x - (x^2 + x - 6)$

$= 2x^2 + x - x^2 - x + 6$

$= x^2 + 6$

	x	+3
x	x^2	$3x$
-2	$-2x$	-6

Area: $x^2 + 6$