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7) Simplify by collecting like terms

a) $(3s^2 + 2s + 4) - (2s^2 + s + 1)$

c) $(3s^2 - 2s - 4) - (-2s^2 + s - 1)$

8) Simplify by collecting like terms

a) $(3x + 7) - (-2x - 2)$

b) $(b^2 + 4b) - (-3b^2 + 7b)$

c) $(-3x + 5) - (4x + 3)$

d) $(4 - 5p) - (-7p + 3)$

e) $(6x^2 + 7x + 9) - (4x^2 + 3x + 1)$

h) $(1 - 3r + r^2) - (4r + 5 - 3r^2)$

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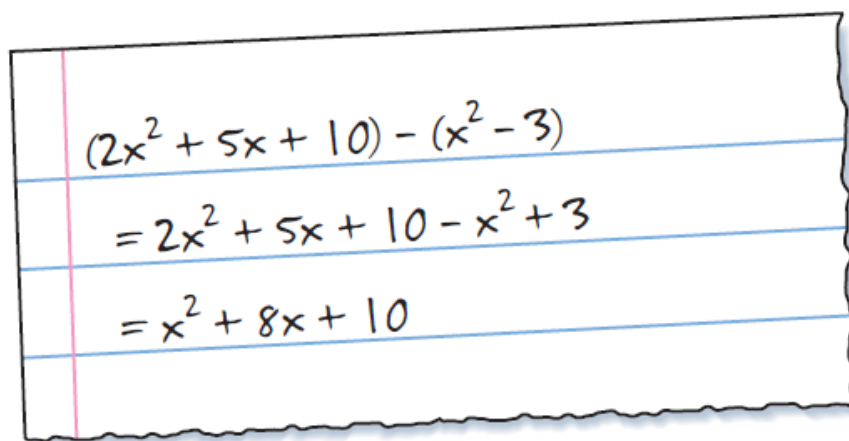f) $(12m^2 - 4m + 7) - (8m^2 + 3m - 3)$

9. The polynomial $4n + 2500$ represents the cost, in dollars, to produce n copies of a magazine in colour. The polynomial $2n + 2100$ represents the cost, in dollars, to produce n copies of the magazine in black-and-white.

a) Write a polynomial for the difference in the costs of the two types of magazines.

colour copies - black and white

b) Suppose the company wants to print 3000 magazines. How much more does it cost to produce the magazine in colour instead of black-and-white?
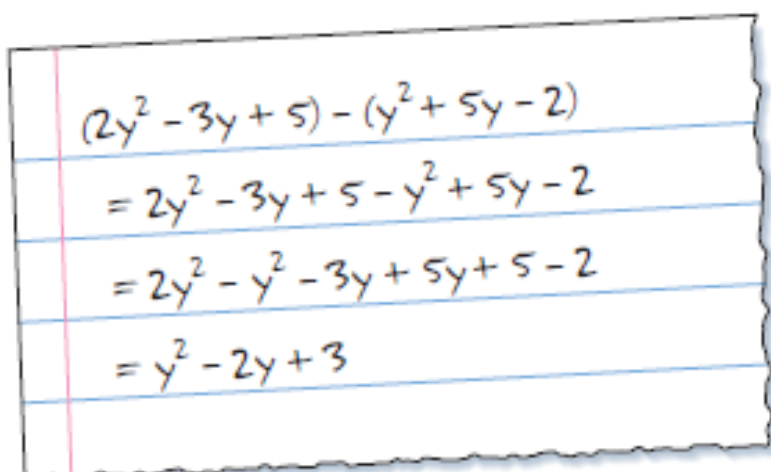
10. A student subtracted

$(2x^2 + 5x + 10) - (x^2 - 3)$ like this:

$(2x^2 + 5x + 10) - (x^2 - 3)$

$= 2x^2 + 5x + 10 - x^2 + 3$

$= x^2 + 8x + 10$

$(2x^2 + 5x + 10) - (x^2 - 3)$

12. A student subtracted like this:

$(2y^2 - 3y + 5) - (y^2 + 5y - 2)$

$= 2y^2 - 3y + 5 - y^2 + 5y - 2$
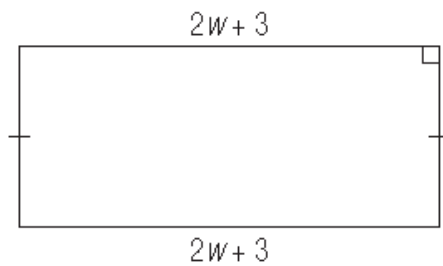
$= 2y^2 - y^2 - 3y + 5y + 5 - 2$

$= y^2 - 2y + 3$

You do it out

$$(2y^2 - 3y + 5) - (y^2 + 5y - 2)$$

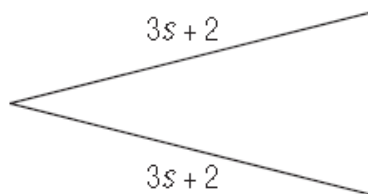**13.** The perimeter of each polygon is given.
Determine each unknown length.

a) $6w + 14$

2w + 3

2w + 3

P= side + side + side + side

6w + 14= (   ) + (   ) + (   ) + (   )

b) $7s + 7$

3s + 2

3s + 2

P= side + side + side

7s + 7= (   ) + (   ) + (   )

15. Subtract.

a) $(r^2 - 3rs + 5s^2) - (-2r^2 - 3rs - 5s^2)$

c) $(5cd + 8c^2 - 7d^2) - (3d^2 + 6cd - 4c^2)$

d) $(9e + 9f - 3e^2 + 4f^2) - (-f^2 - 2e^2 + 3f - 6e)$
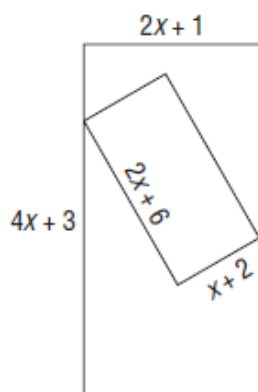
16. The difference of two polynomials is
$3x^2 + 4x - 7$.
One polynomial is $-8x^2 + 5x - 4$.
a) What is the other polynomial?

$$-8x^2 + 5x - 4$$

$$-()$$

$$\overline{}$$

$$3x^2 + 4x - 7$$

17. The diagram shows one rectangle inside another rectangle. What is the difference in the perimeters of the rectangles?

$2x + 1$

$4x + 3$

$2x + 6$

$x + 2$

Need to find the perimeter of the big and subtract the perimeter of the small.

18. One polynomial is subtracted from another.
The difference is $-4x^2 + 2x - 5$.
Write two polynomials that have this
difference. How many different pairs of
polynomials can you find? Explain.

$$\begin{array}{r} (\qquad) \\ -(\qquad) \\ \hline -4x^2 + 2x - 5 \end{array}$$