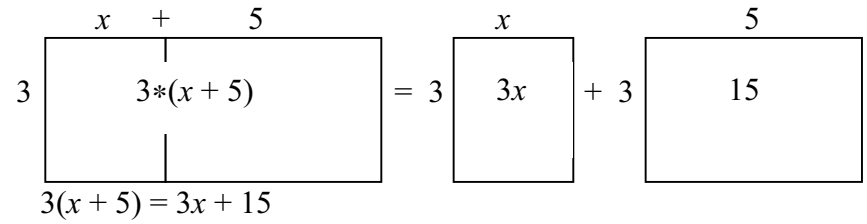
6.2 Products and Factors

1)



$3(x + 5) = 3x + 15$

3) $8z * (5z - 3)$

$= (8z * 5z) - (8z * 3)$

$= 40z^2 - 24z$

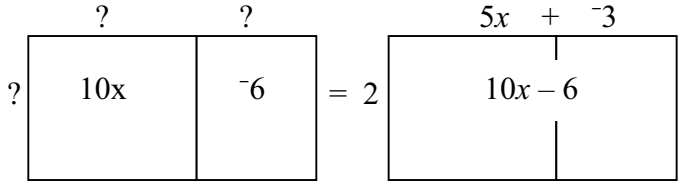
5) $-(-x^2 + 9x - 5)$

$= (^-1) * (-x^2 + 9x - 5)$

$= x^2 - 9x + 5$

7)

a)



$10x - 6 = 2 * (5x + ^-3) = 2(5x - 3)$

b) $2*(5x - 3) = (2*5x) - (2*3) = 10x - 6$

9)

a) $\text{GCF}(9x^3, 18x^5) = 9x^3$

b) $\text{GCF}(21x^2y, 15xy^3) = 3xy$

11) Surface Area $= 2\pi rh + 2\pi r^2 = 2\pi r(h + r)$

13)

a) The expression has two terms because an addition sign separates them.

b) $(x + 3)$

c) $(x + 3) * 4y + (x + 3) * 9 = (x + 3) * (4y + 9) = (x + 3)(4y + 9)$

15)

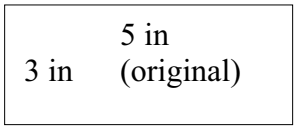
a) $x^2 + 4x = 0$

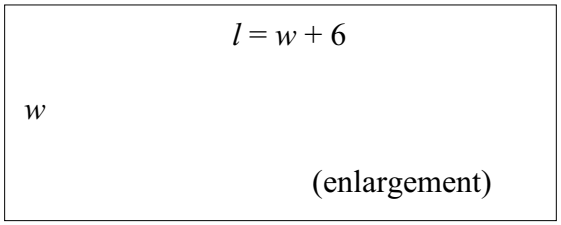
$x(x+4) = 0$
$x = 0$ or $x + 4 = 0$
$x = 0$ or $x = -4$

b) $x^2 - 11x = 0$
$x(x-11) = 0$
$x = 0$ or $x - 11 = 0$
$x = 0$ or $x = 11$

Skill and Review

17) Let l be the length of the enlargement and let w denote its width.
We know $l = w + 6$. The dimensions of the enlarged picture are proportional to those of the original picture.



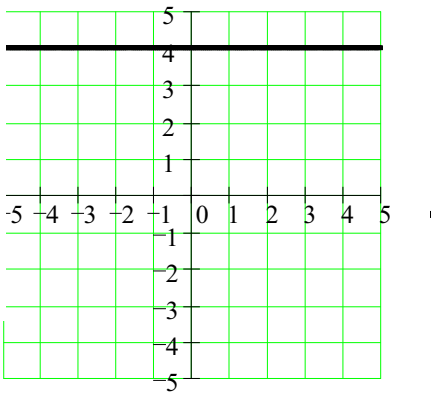


From this, we have $\frac{3}{5} = \frac{w}{w+6}$. From this ratio and the cross multiplication property of proportions [FACT 5.1], we have $3(w+6) = 5w$
$3w + 18 = 5w$
$2w = 18$
$w = 9$ in ➔ $l = (9 \text{ in}) + 6 \text{ in} = 15 \text{ in}$.
The width of the enlargement is 9 in and the length is 15 in.

Note: There are several other proportions that can be constructed that would also yield the same answer.

19)

a) Any ordered pair of the form $(x, 4)$ is acceptable, where x is any real number.



b) Any ordered pair of the form $(^{-}2, y)$ is acceptable, where y is any real number.