Algebraic Products

Q1. Simplify these expressions.

a) $3 \times a$

b) $5 \times r$

c) $7 \times 2 \times r$

d) $r \times w$

e) $h \times e \times 3$

f) $8 \times u \times i \times 2$

g) $2d \times 3$

h) $4d \times 6$

i) $2 \times 3g \times 6$

j) $2 \times r \times e$

k) $4 \times q \times x \times 2d$

l) $9 \times w \times 3e \times 2s$

Q2. Simplify these expressions.

a) $y \times y$

b) $2x \times x$

c) $4 \times r \times 2r$

d) $h \times f \times 2h \times f$

e) $2p \times 3q$

f) $2xy \times 3xy$

g) $i \times 2i \times 3r$

h) $8m \times m \times 2n$

i) $6g \times 2f \times g \times a$

j) $8y \times x \times 2e \times xy$

k) $4g \times e \times 2g \times 2eg$

l) $4rf \times 6fr \times fr$

Q3. The top of each shape is the sum of the two expressions and the bottom is the product. Complete the missing terms in each cell. The first one has been done for you.

a)

x + 2y
x	2y
2xy

b)

3a	b

c)

5gr	2g

c)

6gh	
12ghe

d)

3	
3er

e)

9m	
36tmk
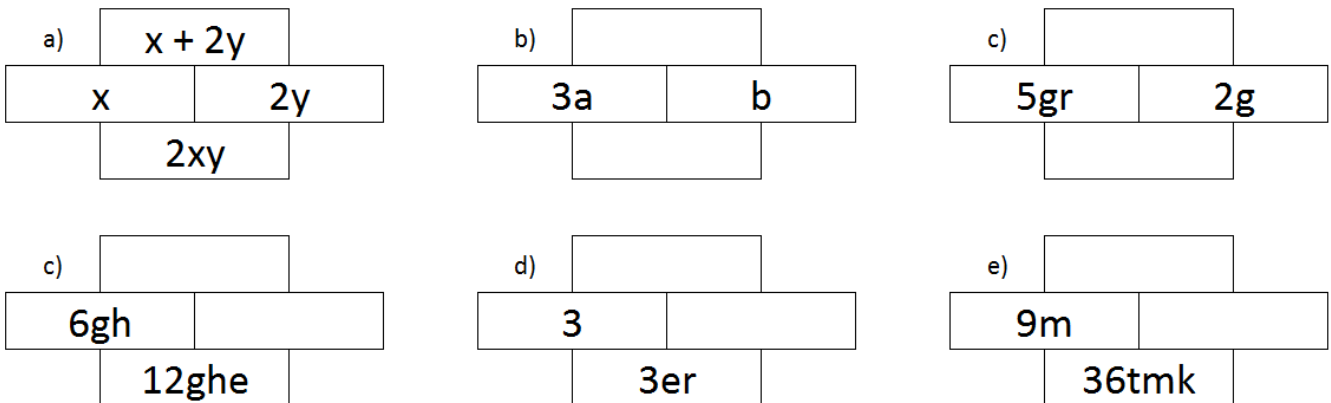
Q4. Investigate possible perimeters for these rectangles given their fixed area:

a)

Area = 4ab units ^{2}

b)

Area = $36r^2h$ units ^{2}
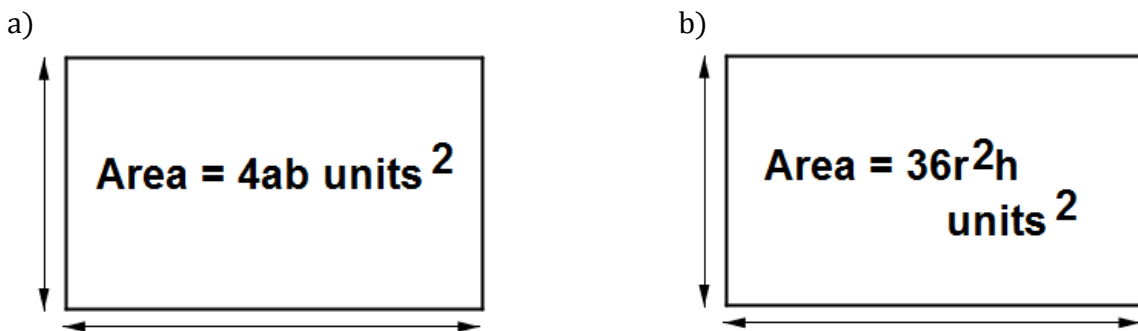
Substituting into Expressions

Q1. Substitute these values into the following expressions:

$a = 4$ $\qquad\qquad$ $b = 2$ $\qquad\qquad$ $c = 5$ $\qquad\qquad$ $d = 8$

a) $a + 12$ $\qquad$ b) $b + 5$ $\qquad$ c) $c - 4$

d) $5d$ $\qquad$ e) $9a$ $\qquad$ f) $2b + 6$

g) $\frac{c}{5}$ $\qquad$ h) $\frac{d}{2}$ $\qquad$ i) $\frac{6a}{4}$

j) $\frac{d}{2} + 5$ $\qquad$ k) $2c + a$ $\qquad$ l) $ab - 2$

Q2. Substitute these values into the following expressions:

$g = 1$ $\qquad\qquad$ $h = 7$ $\qquad\qquad$ $x = 9$ $\qquad\qquad$ $w = 10$

a) $2g + w$ $\qquad$ b) $5x - h$ $\qquad$ c) $gx + h$

d) $6hw$ $\qquad$ e) $3w - 8g$ $\qquad$ f) $2g + hw$

g) $\frac{w}{5g}$ $\qquad$ h) $\frac{h+x}{4}$ $\qquad$ i) $\frac{x-h}{2}$

j) $\frac{h+3}{w} + 4$ $\qquad$ k) $hx - g$ $\qquad$ l) $hxw + 4g$

Q3. Use these values to match the following expressions:

$u = 3$ $\qquad\qquad$ $t = 6$ $\qquad\qquad$ $m = 12$ $\qquad\qquad$ $d = 20$

$2d + 6$	$4t + u$	$\dfrac{5u + 6}{3}$	$d + m$	t
$d + t + 1$	$\dfrac{um}{t}$	$3m + 10$	$6t - 4$	$ut - 11$

Q4. Use these values to place the following expressions in ascending order.

$r = -1$ $\qquad\qquad$ $t = 10$ $\qquad\qquad$ $m = 4$ $\qquad\qquad$ $d = 0.5$

$2t - md$	$4m + r$	$3t + rm$	$dt + 5m$

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