

9D 1.7 Distributive Property

February 17, 2017 10:42 AM

Pg 166 # 5, 6, 7, 10, 13, 15 fgh, 16 ad

5 a) $2b(3b-5) = 6b^2 - 10b$ b) $3v(8v+7) = 24v^2 + 21v$ c) $-4w(3w-1) = -12w^2 + 4w$

d) $-6m(-m-5) = 6m^2 + 30m$ e) $2g(-4g+3) = -8g^2 + 6g$ f) $-3d(-d+2) = 3d^2 - 6d$

6 a) $(n-5) \times 4 = 4n - 20$ b) $(2p+4) \times 9 = 18p + 36$ c) $(7m+6) \times (-4) = -28m - 24$

d) $(7+c)(3c) = 21c + 3c^2$ e) $(3-6w)(-2) = -6 + 12w$ f) $(4k+7)(-3k) = -12k^2 - 21k$

7. a) $2(a^2+5a+3) = 2a^2 + 10a + 6$ b) $-3(2n^2-9n+5) = -6n^2 + 27n - 15$ c) $4k(k^2+k-3) = 4k^3 + 4k^2 - 12k$

d) $-5h(3h^2-7h-2) = -15h^3 + 35h^2 + 10h$ e) $(x^2-5x+2)(-3) = -3x^2 + 15x - 6$ f) $(2y^2+3y-1)(4y) = 8y^3 + 12y^2 - 4y$

10. $50 + 30h$ (50 dollars plus 30 x number of hours)

b) for a 2.5 h job: $50 + 30h = 50 + 30(2.5) = 50 + 75 = 125$ Total charge is \$125.00

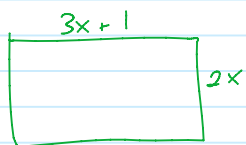
c) charges doubled means $\times 2$

so: $2(50 + 30h) = 100 + 60h$

d) for 2.5 hr job: $100 + 60h = 100 + 60(2.5) = 100 + 150 = 250$ Total charge is \$250.00

-it makes sense since it costs twice as much! ($75 \times 2 = 250$)

13.

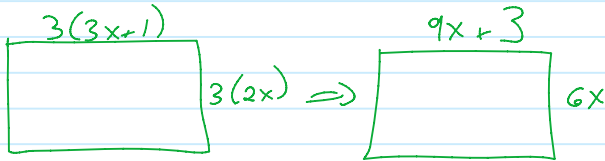


a) Perimeter = $2x + (3x+1) + 2x + (3x+1) = 2x + 3x + 1 + 2x + 3x + 1 = 2x + 3x + 2x + 3x + 1 + 1 = 10x + 2$

$P = 10x + 2$

$$\begin{aligned}
 \text{b) Area} &= l \times w \\
 &= (3x+1)(2x) \\
 &= 6x^2 + 2x
 \end{aligned}$$

c) length/width tripled:



$$\begin{aligned}
 \text{new } P &= 6x + (9x+3) + 6x + (9x+3) \\
 &= 6x + 9x + 3 + 6x + 9x + 3 \\
 &= 30x + 6
 \end{aligned}$$

yes, perimeter has tripled!

$$\begin{aligned}
 3(10x+2) &= 30x+6 \\
 &\quad \uparrow \\
 &\text{original } P
 \end{aligned}$$

$$\begin{aligned}
 \text{new area: } A &= l \times w \\
 &= (9x+3)(6x) \\
 &= 54x^2 + 18x
 \end{aligned}$$

no, area has not tripled:

$$\begin{aligned}
 3(6x^2+2x) &= 18x^2+6x \\
 &\quad \uparrow \quad \quad \quad \uparrow \\
 &\text{original area} \quad \quad \text{NOT } 54x^2+18x
 \end{aligned}$$

$$\begin{aligned}
 \text{15f) } & -0.7w(2w-3) - 0.6w(w+3) \\
 &= -1.4w^2 + 2.1w - 0.6w^2 - 1.8w \\
 &= -1.4w^2 - 0.6w^2 + 2.1w - 1.8w \\
 &= -2.0w^2 + 0.3w
 \end{aligned}$$

$$\begin{aligned}
 \text{g) } & 3(y-2) - 2(4-2y) + (6-7y) \\
 &= 3y - 6 - 8 + 4y + 6 - 7y \\
 &= 3y + 4y - 7y - 6 - 8 + 6 \\
 &= -8
 \end{aligned}$$

$$\begin{aligned}
 \text{h) } & 4k(k-3) - 2(k^2-3k+4) - (k^2-5) \\
 &= 4k^2 - 12k - 2k^2 + 6k - 8 - k^2 + 5 \\
 &= 4k^2 - 2k^2 - k^2 - 12k + 6k - 8 + 5 \\
 &= k^2 - 6k - 3
 \end{aligned}$$

$$\begin{aligned}
 \text{16a) } & \frac{1}{3}(3a+2) + \frac{1}{4}(4a-2) \\
 &= a + \frac{2}{3} + a - \frac{2}{4}
 \end{aligned}$$

$$\text{aside work: } \frac{1}{3}(\underline{3}a) = \frac{\underline{3}a}{\underline{3}} = a$$

$$\frac{1}{4}(4a) = \frac{4a}{4} = a$$

$$= a + \frac{2}{3} + a - \frac{2}{4}$$

$$= a + a + \frac{2}{3} - \frac{2}{4}$$

$$= a + a + \frac{2}{3} - \frac{1}{2}$$

$$= 2a + \frac{4}{6} - \frac{3}{6}$$

$$= 2a + \frac{1}{6}$$

$$d) -\frac{1}{4}(4u - 3v) - \frac{3}{5}(6u - 10v)$$

$$= -\frac{4u}{4} + \frac{3v}{4} - \frac{18u}{5} + \frac{30v}{5}$$

$$= -u - \frac{18u}{5} + \frac{3v}{4} + \frac{30v}{5}$$

$$= -\frac{5u}{5} - \frac{18u}{5} + \frac{15v}{20} + \frac{120v}{20}$$

$$= -\frac{23u}{5} + \frac{135v}{20}$$

$$= -\frac{23}{5}u + \frac{27}{4}v$$

$$\frac{1}{4}(4a) = \frac{4a}{4} = a$$

aside work:

$$-\frac{1}{4}(4u) = -\frac{4u}{4} = -u$$

$$-\frac{1}{4}(-3v) = \frac{3v}{4}$$

$$-\frac{3}{5}(6u) = -\frac{18u}{5}$$

$$-\frac{3}{5}(-10v) = \frac{30v}{5}$$