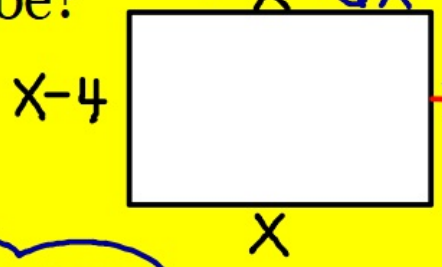
Warm Up February 27, 2019

1.) A rectangle has a length of x inches and a width 4 inches less than the length. If the dimensions are doubled, what would the area of the rectangle be?



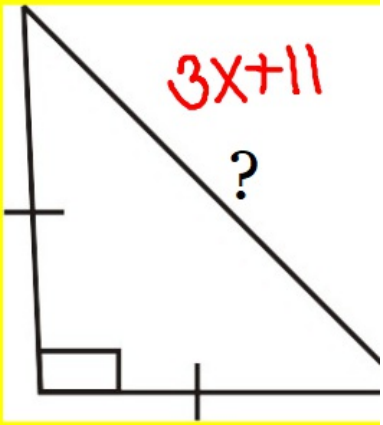
$2x$ $2x-8$

$2x(2x-8)$

$4x^2-16x=$ area

2.) The perimeter of the triangle pictured is $12x+7$. Find the length of the missing side.

add 3 sides



$(x-8)+(8x+4)+?=12x+7$

$9x-4+?=12x+7$

$-9x-4 \quad -9x-4$

$?=12x+7-(9x-4)$

$=12x+7-9x+4$

$?=3x+11$

$3x+11$

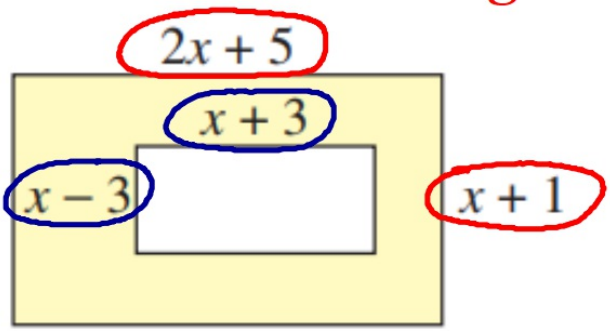
#6

$168, 84, 42, 21, \ldots$

$a_1 = 168$ $\quad a_n = a_1 \cdot r^{n-1}$

$r = \frac{1}{2}$ $\quad a_n = 168\left(\frac{1}{2}\right)^{n-1}$

Find the area of the shaded region.



$\text{Area}_{\text{big}} - \text{Area}_{\text{small}} = \text{Area}_{\text{shaded}}$

$(2x+5)(x+1) - (x+3)(x-3)$

$x^2 - 3x + 3x - 9$

	$2x+5$
x	$2x^2$ | $5x$
$+1$	$2x$ | 5

$2x^2+7x+5-(x^2-9)$

$2x^2+7x+5-x^2+9$

$x^2+7x+14$

Dividing Monomials

- **Step 1:** Divide the coefficients.
- **Step 2:** Use the **QUOTIENT RULE** to simplify the exponents.

QUOTIENT RULE:

$$\frac{x^a}{x^b} = x^{a-b}$$

1. $\frac{x^5}{x^3}$ $\frac{1}{1} x^{5-3} = x^2$

2. $\frac{k^8}{k^3}$ $\frac{1}{1} k^{8-3} = k^5$

Subtract the exponents
Top - bottom

5. $\frac{6x^4}{2x^3} = \frac{6}{2}x^{4-3}$

$= 3x$

6. $\frac{14x^2y^2}{7xy} = \frac{14}{7}x^{2-1}y^{2-1}$

$2xy$

9. $\frac{4n^5}{8n} = \frac{4}{8}n^{5-1}$

$\frac{1}{2}n^4$ OR $\frac{n^4}{2}$

10. $\frac{36x^9y^5}{54x^3y^2}$

$\frac{36}{54}x^{9-3}y^{5-2}$ $\frac{2}{3}x^6y^3$

Putting it all together

SIMPLIFY THE MONOMIALS COMPLETELY. (Make sure to only do one step at a time!)

11. $\frac{(3x^5)^2}{27x^3}$

$(3x^5)(3x^5) = \frac{9x^{10}}{27x^3}$

$= \frac{1}{3}x^{10-3}$ $\frac{1}{3}x^7$

12. $\frac{(2a^2b^4)^3}{4a^3b^7}$

$(2)^3(a^2)^3(b^4)^3 = \frac{8a^6b^{12}}{4a^3b^7}$

$2a^3b^5$

$\frac{9 \cdot x \cdot x \cdot x \cdot x \cdot x \cdot x \cdot x \cdot x \cdot x \cdot x}{27 \cdot x \cdot x \cdot x}$

15. $\left(\frac{12x^5}{15x}\right)^2$

$\left(\frac{12x^5}{15x}\right)\left(\frac{12x^5}{15x}\right)$

$\frac{144x^{10}}{225x^2} = \frac{16}{25}x^8$

16. $\left(\frac{4ab^2}{5ab}\right)^2$

19. $\frac{(8cd^3)(-3c^4)}{6c^2d} - 9c^3d^2$

$\frac{-24c^5d^3}{6c^2d} - 9c^3d^2$

$-4c^3d^2 - 9c^3d^2$

$-13c^3d^2$

20. $\frac{(-6x^4y^6)^2}{(-3x^3y^5)^2} - 7x^2y^2$