

Pg 590 #49

$$\overbrace{\hspace{10em}}^{x+6\text{mph}} \xrightarrow{y} \text{50mi}$$

$$\xleftarrow{y} \overbrace{\hspace{10em}}^{x-6\text{mph}} \text{30mi}$$

down  $50 = (x+6)y$

up  $30 = (x-6)y$

$$\frac{50}{x+6} = y$$

$$\frac{30}{x-6} = y$$

$$\frac{50}{x+6} = \frac{30}{x-6}$$

$$50(x-6) = 30(x+6)$$
$$50x - 300 = 30x + 180$$

$$\frac{20x}{20} = \frac{480}{20}$$

$$x = 24\text{mph}$$

Sum of cubes

$$a^3 + b^3 = (a+b)(a^2 - ab + b^2)$$

Difference of cubes

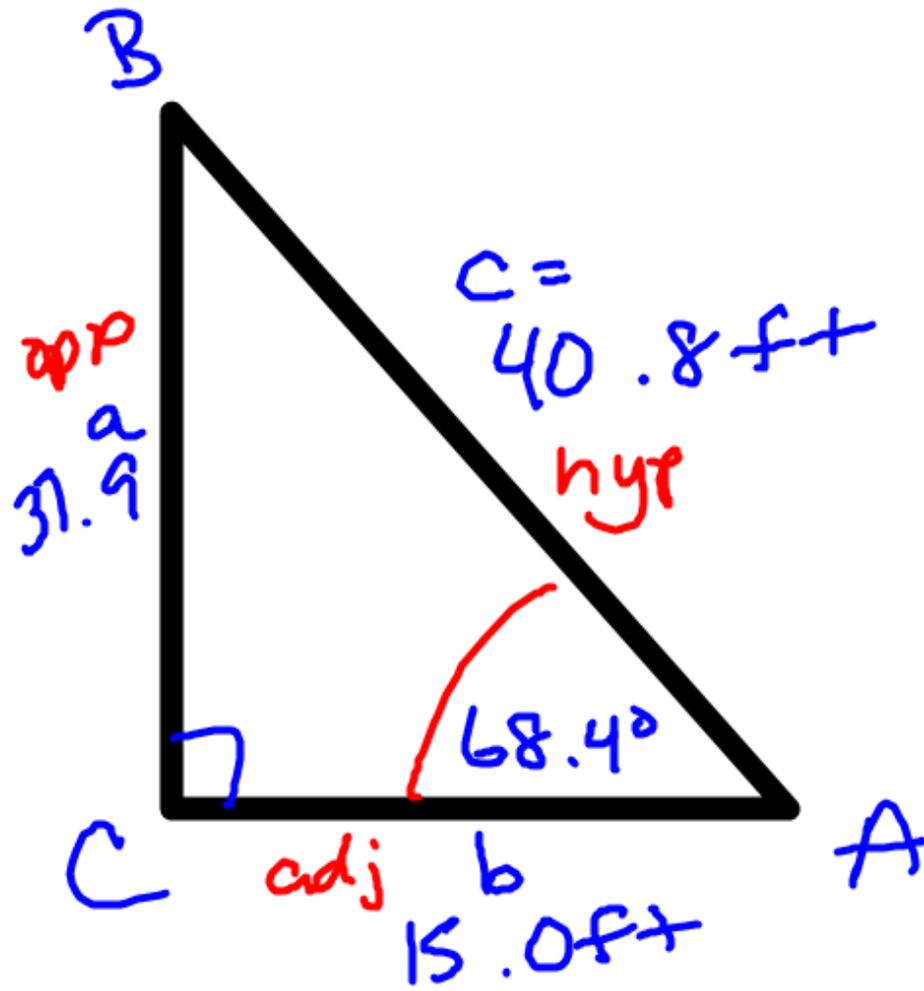
$$a^3 - b^3 = (a-b)(a^2 + ab + b^2)$$

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ex)

$$\begin{array}{l} 8x^3 - 27 \\ (2x)^3 - (3)^3 \\ a \quad b \end{array} = (2x-3)((2x)^2 + (2x)(3) + (3)^2) \\ (2x-3)(4x^2 + 6x + 9)$$

17.  $A = 68.4^\circ$ ,  $c = 40.8$  ft



$$\angle B = 90 - 68.4 = 21.6^\circ$$

$$\sin 68.4 = \frac{a}{40.8}$$

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sin(68.4)
.9297764859
Ans*40.8
37.93488062
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$$\cos 68.4 = \frac{b}{40.8}$$

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cos(68.4)
.3681245527
Ans*40.8
15.01948175
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pg 590 #45

$$\text{LCM} = (x+3)(x-2)(x+1)$$

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

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

$$(x+6)(x+1) + (x)(x-2) = (x+2)(x+3)$$

$$x^2+6x+x+6 + x^2-2x = x^2+2x+3x+6$$

$$2x^2+5x+6 = x^2+5x+6$$

$$x^2 = 0$$

$$x = 0$$

P9 590 # 37

$$\text{LCM} = (x+2)(x-2)$$

Domain

$$x \neq -2, 2$$

$$f(x) = \frac{3x}{x+2} - \frac{x}{x-2} + \frac{8}{x^2-4}$$

$(x+2)(x-2)$

$$\frac{(3x)(x-2) - \overset{-x}{\cancel{(x)}(x+2)} + 8}{(x+2)(x-2)} = \frac{2(x-2)\cancel{(x-2)}}{(x+2)\cancel{(x-2)}}$$

bp

$$3x^2 - 6x - x^2 - 2x + 8$$

$$2x^2 - 8x + 8$$

$$2(x^2 - 4x + 4)$$

$$2(x-2)(x-2)$$

$$\frac{2(x-2)}{(x+2)}$$

Pg 590 #47

$$a = \text{Megan} = 9$$

$$b = \text{Kelly} = 12$$

$$t = x$$

$$\frac{t}{a} + \frac{t}{b} = 1$$

$$\frac{x}{9} + \frac{x}{12} = 1$$

$$\text{LCM} = 36$$

$$\frac{4x + 3x}{36} = 1$$

$$\frac{7x}{36} = 1$$

$$7x = 36$$

$$x = \frac{36}{7}$$

$$x = 5\frac{1}{7} \text{ hr}$$