

Pg 495 #21

$$27x^3 - 8$$

$$(3x)^3 - (2)^3$$

$$\begin{array}{l} a = 3x \\ b = 2 \end{array}$$

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

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

$$(3x - 2)(9x^2 + 6x + 4)$$

pg 589 #17

Simplify

$$\frac{14x^2 - x - 3}{2x^2 - 7x + 3} = \frac{\cancel{(2x-1)}(7x+3)}{\cancel{(2x-1)}(x-3)}$$

Top

$$-42 = -7 \cdot 6$$

$$-1 = -7 + 6$$

$$14x^2 - x - 3$$

$$14x^2 - 7x + 6x - 3$$

$$7x(2x-1) + 3(2x-1)$$

$$(2x-1)(7x+3)$$

Bottom

$$6 = -6 \cdot -1$$

$$-7 = -6 + -1$$

$$2x^2 - 7x + 3$$

$$2x^2 - 6x - 1x + 3$$

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

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

pg 589 #11

$$f(x) = \frac{x^2 - 3x + 2}{x^2 - 9}$$

$$f(0) = \frac{(0)^2 - 3(0) + 2}{(0)^2 - 9} = \frac{2}{-9} = -\frac{2}{9}$$

$$f(-1) = \frac{(-1)^2 - 3(-1) + 2}{(-1)^2 - 9} = \frac{1 + 3 + 2}{1 - 9} = \frac{6}{-8} = -\frac{3}{4}$$

pg 589 #22

$$\frac{4x^4}{x^2-1} \div \frac{2x^3}{x^2-2x+1}$$

\uparrow
 $(x-1)(x+1)$

\uparrow
 $(x-1)(x-1)$

$$\frac{\cancel{2} \cancel{4} x^4}{\cancel{(x-1)}(x+1)} \cdot \frac{\cancel{(x-1)}(x-1)}{\cancel{2} \cancel{x^3}} = \frac{2(x-1)}{(x+1)}$$

$$\text{ex) } \frac{3x}{x+4} - \frac{2}{x-4}$$

$$\text{LCM} = (x+4)(x-4)$$

$$\frac{3x(x-4) - 2(x+4)}{(x+4)(x-4)} = \frac{\overset{\text{TOP}}{3x^2 - 12x - 2x - 8}}{3x^2 - 10x - 8}$$

$-24 = -12 \cdot 2$
 $-10 = -12 + 2$

$$\frac{3x(x-4) + 2(x-4)}{(3x+2)(x-4)}$$

$$\frac{(3x+2)\cancel{(x-4)}}{(x+4)\cancel{(x-4)}}$$

Pg 589 #13

$$\frac{9}{x-4}$$

$$x-4 \neq 0$$

$$x \neq 4$$

$$81x^4 - 1$$

$$a = 9x^2$$

$$(9x^2)^2 - (1)^2$$

$$b = 1$$

$$(9x^2 - 1)(9x^2 + 1)$$

↓

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

$$a = 3x$$

$$b = 1$$

$$(3x - 1)(3x + 1)(9x^2 + 1)$$

pg 538 #3

$$\frac{3}{5x} \div \frac{2}{x^2}$$

$$\frac{3}{\cancel{5x}} \cdot \frac{x^2 \leftarrow \cancel{xx}}{2} = \frac{3x}{10}$$

$$\frac{x^2 + 3x + 2}{x^2 + x - 30}$$

$$x^2 + x - 30 \neq 0$$
$$(x+6)(x-5)$$

$$x+6 \neq 0 \quad x-5 \neq 0$$
$$x \neq -6 \quad x \neq 5$$

pg 495 #9

$$7x^2 + 6x = x(7x + 6)$$

#41

$$x^2 + 180 = 27x$$

$$x^2 - 27x + 180 = 0$$

$$(x - 12)(x - 15) = 0$$

$$x - 12 = 0$$

$$x = 12$$

$$x - 15 = 0$$

$$x = 15$$

$$180 = -12 \cdot -15$$

$$-27 = -12 + -15$$

9. $\sin \theta \approx .6868$

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sin-1(.6868)  
43.37733189
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pg 474

ex #7

$$-25m^2 - 20mn - 4n^2$$

$$-1(25m^2 + 20mn + 4n^2)$$

$$25m^2 + 10mn + 10mn + 4n^2$$

$$5m(5m + 2n) + 2n(5m + 2n)$$

$$-1(5m + 2n)(5m + 2n)$$

$$100 = 10 \cdot 10$$

$$20 = 10 + 10$$

pg 590 #51

Tagged 33 total

$$\frac{\text{Tagged}}{\text{Total}} = \frac{24}{40} \times \frac{33}{x}$$

$$\frac{24x}{24} = \frac{1320}{24}$$

$$x = 55$$

pg 495 # 43

$$f(x) = x^2 - 7x - 40$$

$$f(x) = 4$$

$$4 = x^2 - 7x - 40$$

$$0 = x^2 - 7x - 44$$

$$0 = (x-11)(x+4)$$

$$-44 = -11 \cdot 4$$

$$-7 = -11 + 4$$

$$x-11=0$$

$$x=11$$

$$x+4=0$$

$$x=-4$$

Pg 553 #11

LCM \rightarrow 30

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

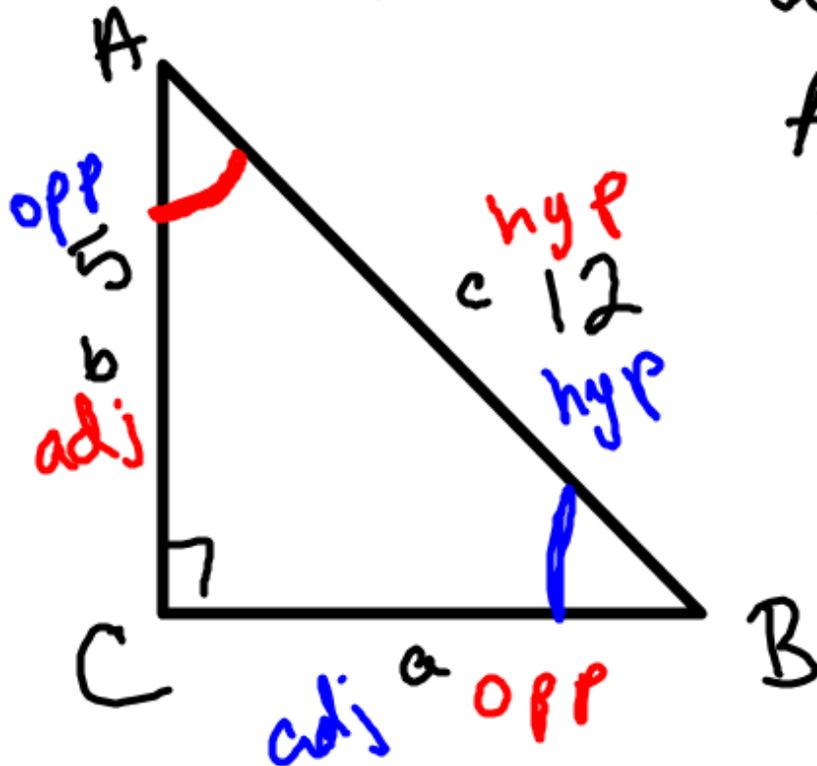
$$3(6) - 2(10) = x(5)$$

$$18 - 20 = 5x$$

$$\frac{-2}{5} = \frac{5x}{5}$$

$$x = \frac{-2}{5}$$

14. $b = 5 \text{ cm}$, $c = 12 \text{ cm}$



$$a = 10.9 \text{ cm}$$

$$A = 65.4^\circ$$

$$B = 24.6^\circ$$

$$a^2 + b^2 = c^2$$

$$a^2 + 5^2 = 12^2$$

$$a^2 + 25 = 144$$

$$\sqrt{a^2} = \sqrt{119}$$

$$a = 10.9$$

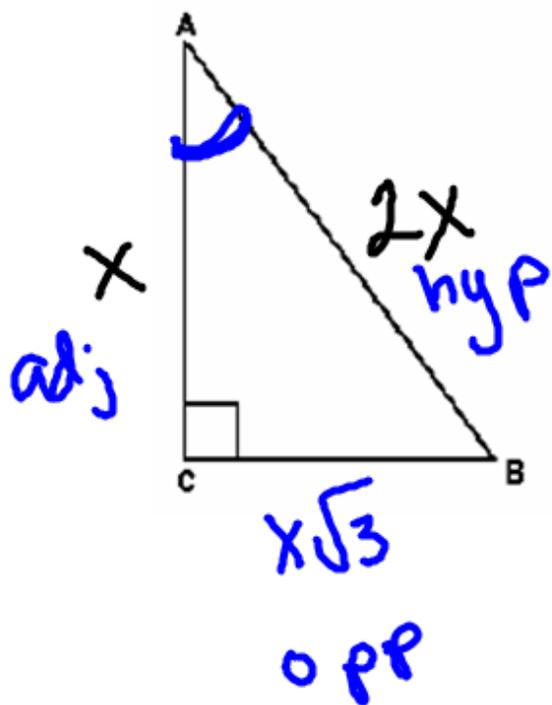
$$\cos A = \frac{5}{12}$$

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cos-1(5/12)  
65.37568165
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$$\sin B = \frac{5}{12}$$

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sin-1(5/12)  
24.62431835
```

4.



$$\begin{aligned} b &= x \\ c &= 2x \end{aligned}$$

$$\begin{aligned} a^2 + b^2 &= c^2 \\ a^2 + (x)^2 &= (2x)^2 \\ a^2 + x^2 &= 4x^2 \\ \sqrt{a^2} &= \sqrt{3x^2} \\ a &= x\sqrt{3} \end{aligned}$$

$$\sin A = \frac{x\sqrt{3}}{2x} = \frac{\sqrt{3}}{2}$$

$$\cos A = \frac{x}{2x} = \frac{1}{2}$$

$$\tan A = \frac{x\sqrt{3}}{x} = \sqrt{3}$$

Pg 579 #74

$$\begin{array}{l} \rightarrow \frac{x^3 + 8y^3}{2x^2 + 5xy + 2y^2} \div \frac{x^3 - 2x^2y + 4xy^2}{8x^2 - 2y^2} \end{array}$$

$$x^3 + 8y^3 \quad a=x$$

$$(x)^3 + (2y)^3 \quad b=2y$$

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

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

$$2x^2 + 5xy + 2y^2 \quad 4=4 \cdot 1$$

$$2x^2 + 4xy + 1xy + 2y^2 \quad 5=4+1$$

$$2x(x+2y) + y(x+2y)$$

$$(2x+y)(x+2y)$$

Pg 538 #1

$$\text{LCM} = 5x^2$$

$$\frac{3}{5x} + \frac{2}{x^2}$$

$$\frac{3(x) + 2(5)}{5x^2} = \frac{3x + 10}{5x^2}$$

pg 585 # 8

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

$$\frac{x}{x-1} - \frac{x-2}{x+1}$$

$$\frac{x(x+1) - (x-2)(x-1)}{(x-1)(x+1)} =$$

$$\frac{2(2x-1)}{(x-1)(x+1)}$$

$$\text{Top } x^2 + x - (x^2 - 2x - 1x + 2)$$

$$4x - 2$$

$$2(2x-1)$$