

2.2

Solve for h

Sadm

$$S = \pi r^2 + 2\pi r h$$

$$\begin{array}{r} \pi r^2 + 2\pi r h = S \\ -\pi r^2 \qquad \qquad = -\pi r^2 \\ \hline 2\pi r h = S - \pi r^2 \end{array}$$

$$\frac{2\pi r h}{2\pi r} = \frac{S - \pi r^2}{2\pi r}$$

$$h = \frac{S - \pi r^2}{2\pi r}$$

S1.5

$$\frac{(6^2 x^{-3} y^4)^3}{(10^2 x^5 y^{-1})^{-4}}$$

$$6^2 = (3 \cdot 2)^2 = 3^2 \cdot 2^2$$

$$10^3 = (2 \cdot 5)^3 = 2^3 \cdot 5^3$$

$$= \frac{(3^2 \cdot 2^2 x^{-3} y^4)^3}{(2^2 \cdot 5^3 x^5 y^{-1})^{-4}} = \frac{(3^2)^3 (2^2)^3 (x^{-3})^3 (y^4)^3}{(2^2)^{-4} (5^3)^{-4} (x^5)^4 (y^{-1})^{-4}}$$

$$\begin{array}{l} (-1)(-4) \\ = 4 \end{array}$$

$$= \frac{3^6 2^6 x^{-9} y^{12}}{2^{-12} 5^{-12} x^{20} y^4}$$

Robby & Taylor

$$= 3^6 \underline{2^6} x^{-9} y^{12} \underline{2^{12}} \underline{5^{12}} x^{20} y^{-4}$$

$$= 3^6 2^{18} 5^{12} x^{-9+20} y^{12-4}$$

$= 3^6 2^{18} 5^{12} x^{11} y^8$ anything with negative power in last step gets moved across

the divider, e.g.

$$3^{-6} 2^{18} 5^{12} x^{-15} y^7 = \frac{2^{18} 5^{12} y^7}{3^6 x^{15}}$$

52.3

What did he start with?

Let $x =$ the amt he started with (\$)

(11) 300 is 50% more than he started with

$$300 = x + .5x = 1.5x$$

$$1.5x = 300$$

$$x = \frac{300}{1.5} = 200 = x$$

Let $x = 1^{\text{st}}$ angle (degrees)

$y = 2^{\text{nd}}$ angle ..

What are the two angles?

(17) One angle is 8 times another, and it's supplementary to the other angle.

$$x = 8y$$

$$x + y = 180$$

$$8y + y = 180$$

$$9y = 180$$

$$y = 20^\circ$$

$$8y = x = 160^\circ$$

She invested part of her \$9000
@ 8% and the other remainder @ 9%.
How much is invested in each account?

Let x = amt invested @ 8% (\$)
 y = " " " 9% (\$)

Then $x + y = 9000 \rightarrow y = 9000 - x$

Adam
J.

$.08x + .09y = 750$, since she
made 750 in interest.

$$.08x + .09(9000 - x) = 750$$

$$.08x + 810 - .09x = 750$$

$$8x + 81000 - 9x = 75000$$

$$-x = -6000$$

$$x = 6000$$

$$y = 9000 - 6000 = 3000 = y$$

82.4

$$\textcircled{5} \quad -5x \leq 25$$

$$\frac{-5x}{-5} \geq \frac{25}{-5}$$

$$x \geq \frac{25}{-5} = -5$$

$$\{x \mid x \geq -5\}$$

$$= [-5, \infty)$$



$$\textcircled{17} \quad \frac{1}{2} \geq -\frac{1}{6} - \frac{2}{9}x$$

$$\text{LCD: } 18 = 2 \cdot 3 \cdot 3$$

$$9 \geq -3 - 4x$$

$$\frac{1}{2} \cdot \frac{3 \cdot 3}{3 \cdot 3} \geq -\frac{1}{2 \cdot 3} \cdot \frac{3}{3} - \frac{2x}{3 \cdot 3} \cdot \frac{2}{2}$$

$$\frac{9}{\text{LCD}} \geq \frac{-3}{\text{LCD}} - \frac{4x}{\text{LCD}}$$

$$9 \geq -3 - 4x$$

$$12 \geq -4x$$

$$\frac{12}{-4} \leq \frac{-4x}{-4}$$

$$\{x \mid -3 \leq x\} = [-3, \infty)$$



$$\frac{3x+2}{(x-2)(x+3)} \geq \frac{5x}{x^2-4}$$

§ 2.4 I graded #59, also

§ 2.5: 5, 11, 35

⑤ $|x| = -3$ Never \emptyset

⑪ $|a-4| = \frac{5}{3}$

$$\left| \frac{2}{1} \cdot \frac{3}{3} - \frac{4}{1} \cdot \frac{3}{3} \right| = \frac{5}{3}$$

$$|3a - 12| = 5$$

$$3a - 12 = 5 \quad \text{OR} \quad 3a - 12 = -5$$

$$3a = 17$$

$$3a = 7$$

$$\left\{ a \mid a = \frac{17}{3} \quad \text{OR} \quad a = \frac{7}{3} \right\}$$

$$\Rightarrow a \in \left\{ \frac{7}{3}, \frac{17}{3} \right\}$$

(35)

$$|9 - \frac{3}{5}x| + 6 = 12$$

$$\frac{3}{5}x$$

$$|9 - \frac{3}{5}x| = 6$$

$$\frac{3x}{5} \text{ or } \frac{3}{5}x \text{ ?}$$

$$| \frac{45 - 3x}{5} | = \frac{30}{5}$$

Shortcut!

()

$$45 - 3x = \pm 30$$

$$-3x = -45 \pm 30$$

$$x = \frac{-45 \pm 30}{-3}$$

$$x \in \{5, 25\}$$

$$\frac{-15}{-3} = 5$$

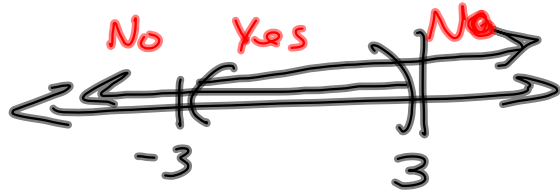
$$\frac{-75}{-3} = 25$$

2.6 5, 7, 17, 39, 59

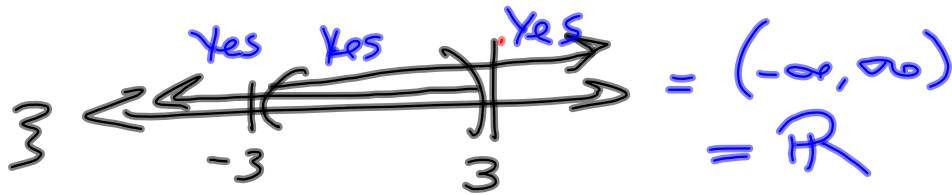
⑤ $|x| + 2 < 5$

$|x| < 3$

$\{x \mid x < 3 \text{ AND } x > -3\}$
 $= (-3, 3)$



what's $\{x \mid x < 3 \text{ OR } x > -3\}$ Look like?



$|x| > -3$

$x > -3 \text{ OR } x < 3$

$|x-2| = |2-x|$

$$|-5x+3| \leq 8$$

$$-5x+3 \leq 8 \quad \text{AND} \quad -5x+3 \geq -8$$

$$-5x \leq 5$$

$$x \geq -1$$

AND

$$-5x \geq -11$$

$$x \leq \frac{11}{5}$$

$$|5x-3| \leq 8$$

$$5x-3 \leq 8 \quad \text{AND} \quad 5x-3 \geq -8$$

$$5x \leq 11$$

$$x \leq \frac{11}{5}$$

$$5x \geq -5$$

$$x \geq -1$$

$$|5x-3| \leq -8$$

\emptyset

$$(5x-3) \geq -8$$

\mathbb{R}