

Solving

Standard Form $ax^2+bx+c=0$

Quadratics			
Square Root Method: If there is no "b" term! $2x^2 - 32 = 0$ $\frac{+32 \ +32}{2x^2 = 32}$ $\frac{2x^2}{2} = \frac{32}{2}$ $x^2 = 16$ $\pm\sqrt{x^2} = \pm\sqrt{16}$	Factoring: If the factors of "a*c" can add to "b"! $2x^2 + x - 10 = 0$ -20 5x + 4x = 1x	Quadratic Formula: Can be used all the time! $2x^2 - x = 8$	Imaginaries: When there are no "real" solutions (doesn't touch the <u>x-axis</u>). $2x^2 - x = -8$ $x = \frac{1 \pm \sqrt{-63}}{4}$

$x = \pm 4$

$2x^2 + 5x - 10 = 0$
 $(2x+5)(x-2)$
 $2x+5=0 \implies x = -\frac{5}{2}$
 $x-2=0 \implies x = 2$

$x = \frac{1 \pm i\sqrt{63}}{4}$

Square Root Functions

Isolate the $\sqrt{\quad}$ and square both sides:

$$(\sqrt{x+2})^2$$

$$x+2 = 30$$

$$x = 34$$

$$3\sqrt{x} - 8 = 7$$

$$\frac{+8}{+8} +8$$

$$\frac{3\sqrt{x}}{3} = \frac{15}{3}$$

$$(\sqrt{x})^2 = (5)^2$$

$$x = 25$$

Rational Functions

Multiply by the Denominator or Cross Multiply:

~~$\frac{15}{x} = \frac{3}{2}$~~

$$\frac{30}{3} = \frac{3x}{3}$$

$$x = 10$$

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

$$2(2x-3) = 6 \cdot 3$$

$$4x - 6 = 18$$

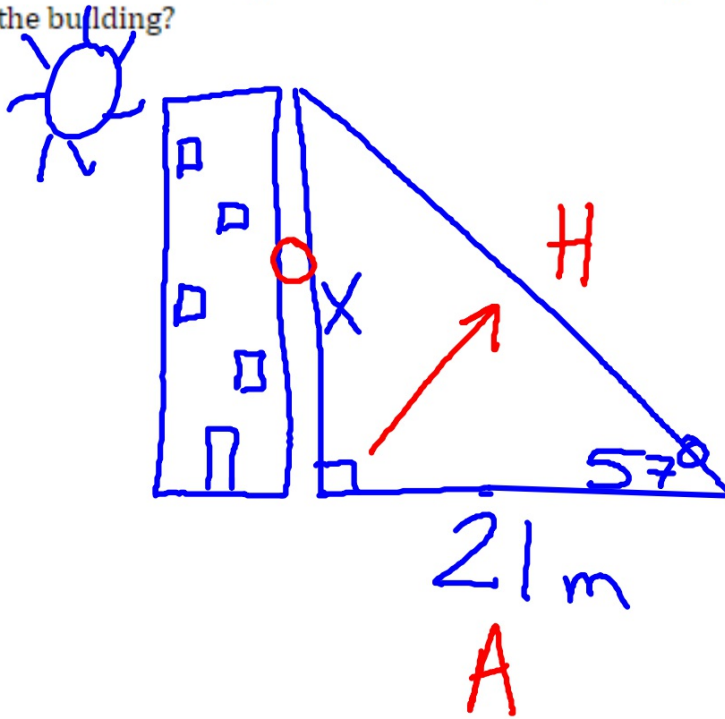
$$+6 \quad +6$$

$$4x = 24$$

$$\frac{4x}{4} = \frac{24}{4}$$

$$x = 6$$

When the sun's angle of elevation is 57° , a building casts a shadow 21 meters long. How high is the building?



~~SOCA TO~~
~~OHCA TA~~

$$\tan x = \frac{\text{opp}}{\text{adj}}$$

$$\frac{\tan 57}{1} = \frac{X}{21}$$

$$X = 21 (\tan 57)$$

$$X = 32 \text{ m}$$

3. A pet store contains 35 light green parakeets (14 females and 21 males) and 44 sky blue parakeets (28 females and 16 males). Arrange this information in a two-way table.

	Male	Female	Total
Light Green Parakeet	21	14	35
Sky Blue Parakeet	16	28	44
Total	37	42	79

Write your answer in reduced fraction form.

a. What is the probability that a randomly chosen parakeet is male?

$$\frac{37}{79}$$

b. You randomly choose one of the parakeets. What is the probability that it is a female or a sky blue parakeet?

$$\frac{58}{79}$$

c. What is the probability that the randomly chosen parakeet is both green and male?

$$\frac{21}{79}$$

4. If you have a bag filled with 5 red marbles, 8 blue marbles, and 7 green marbles, what is the probability of:

$$5+8+7=20$$

a. pulling out a blue marble given that the first marble was green?

$$\frac{7}{20} \left(\frac{8}{19} \right) =$$

b. pulling two red marbles in a row without replacement?

$$\left(\frac{5}{20} \right) \left(\frac{4}{19} \right) =$$

5. What is the probability of choosing the ace of spades from a standard deck of cards given that the card you draw is a black card?

$$\frac{1}{26}$$