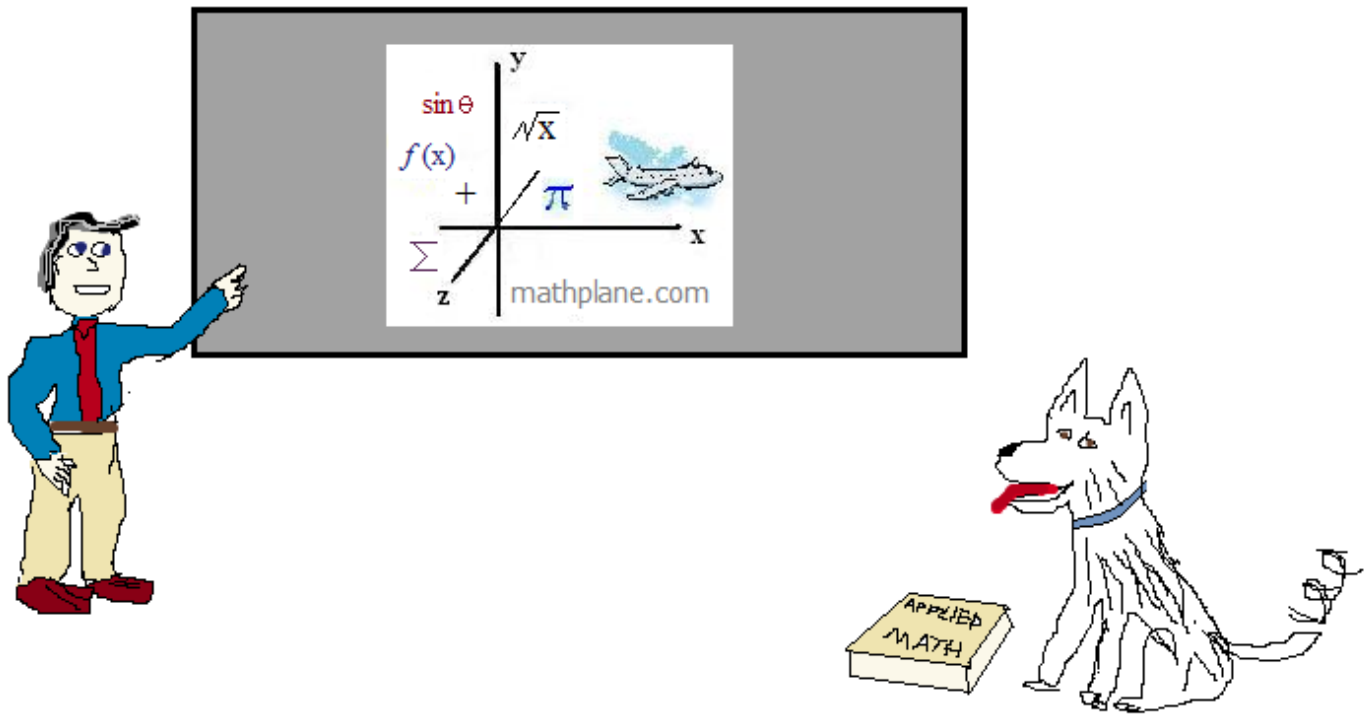


# Algebra Preview Questions



*Topics include fractions, decimals, solving equations, word problems, percentages, distributive property, and more.*

Algebra Equations: Fractions, Decimals, Negatives

I. Decimals

a)  $.3x + .6 = 1.2$

b)  $2.07 + x = 6.14$

c)  $4m + 2.4 = 3.2$

d)  $-21.5 + 11d = 11.5$

e)  $23.01 + x = 52.1$

f)  $3(2.4 + 1.1) = x + 2.3$

II. Fractions

a)  $\frac{x}{8} = 24$

b)  $-2 + \frac{x}{3} = \frac{1}{2}$

c)  $\frac{2}{3}B + 8 = 14$

d)  $4(z + 2) = \frac{8}{3}$

e)  $7y = \frac{1}{14}$

f)  $\frac{2m}{5} + 10 = 20$

Algebra Equations: Fractions, Decimals, Negatives

III. Negatives

a)  $y - 3 = -8$

b)  $2r = -26$

c)  $3x + 3 = -9$

d)  $-(x + 5) = 12$

e)  $\frac{-x}{6} - 8 = -12$

f)  $2z - (-3) = -15$

IV. Word Problems -- Set up each algebra equation and solve.

a) Math books cost \$32.50 apiece. If you pay \$100 for 3 books, how much change will you receive?

b) After 5 math tests, your average is 92. If your first four scores were 85, 93, 88, and 95, what was the score on your 5th test?

c) Apples cost \$1 and oranges cost \$1.50 at the fruit stand.  
If I spend \$25 and take 7 apples, how many oranges did I buy?

d) Gasoline is \$3.25 per gallon and my car can drive 30 miles per gallon.  
How much will a 360 mile trip cost?

Algebra Preview: Mental math

Substitution --- Evaluate each equation.

Example:  $2e + 14 =$

if  $e = 3$

$2(3) + 14 = 20$

$e = 0$

$2(0) + 14 = 14$

$e = -1$

$2(-1) + 14 = 12$

a)  $2n \cdot 1 + 0 =$

if  $n = 0$

$n = 4$

$n = 10$

b)  $(3w + 19) - 5 =$

if  $w = 1$

$w = 0$

$w = 2$

c)  $\frac{3y}{3 - y} =$

if  $y = 0$

$y = 2$

$y = 4$

d)  $\frac{v + 1}{v - 1} =$

if  $v = 0$

$v = 2$

$v = 7$

e)  $3(x + 4) - 2(x + 3) =$

if  $x = 6$

$x = 0$

$x = 1$

f)  $2z + 4(z + 1) =$

if  $z = -1$

$z = 0$

$z = 5$

g)  $t^2 - 4t + 6 =$

if  $t = 4$

$t = 0$

$t = -2$

h)  $(k + 1)(k - 8) =$

if  $k = -2$

$k = 0$

$k = 8$

Distributive Property problems

1)  $3x - 5(x - 2) = 21$

2)  $-2(x - 5) + 8(2 - x) = 20$

3)  $3(x + 2) - 6(4 - x) = 8x$

4)  $.2(10x - 12) = .3(x + 20) + .1$

5)  $\frac{3 + 4x}{2} = 7x - 6$

6)  $\frac{3 - 6x}{4} = \frac{2x + 1}{2}$

7)  $\frac{1}{3}(3x + 6) = 5x - 2(x - 3)$

8)  $-\frac{1}{4}(12x - 8) = \frac{1}{5}(15x + 5)$

9)  $\frac{2}{3}(18x - 6) = 4x$

10)  $\frac{4x + 7}{2} = \frac{6x + 5}{3}$

11)  $2(x - 50) - 3x + 8 = x$

12)  $2x - 4(x + 5) = 3x + 10$

Formula	Solve for:	Bonus: What formula is this?
1) $d = rt$	$r =$ <span style="margin-left: 150px;"><math>t =</math></span>	
2) $F = \frac{9}{5}C + 32$	$C =$	
3) $P = 2L + 2W$	$L =$ <span style="margin-left: 150px;"><math>W =</math></span>	
4) $m = \frac{y_2 - y_1}{x_2 - x_1}$	$y_2 =$ <span style="margin-left: 100px;"><math>y_1 =</math></span> <span style="margin-left: 100px;"><math>x_2 =</math></span>	
5) $A = \frac{h(b_1 + b_2)}{2}$	$h =$ <span style="margin-left: 150px;"><math>b_2 =</math></span>	
6) $a^2 + b^2 = c^2$	$c =$ <span style="margin-left: 150px;"><math>a =</math></span>	
7) $V = \frac{1}{3}\pi r^2 h$	$h =$ <span style="margin-left: 150px;"><math>r =</math></span>	
8) $PV = nRT$	$R =$ <span style="margin-left: 150px;"><math>P =</math></span>	
9) $d = \sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2}$	$x_1 =$	
10) $(x - h)^2 + (y - k)^2 = r^2$	$x =$ <span style="margin-left: 150px;"><math>k =</math></span>	

- 1) A bag of marbles has 4 blue, 6 red, and 10 white marbles.

What is the probability of picking a blue marble and then a white marble (without replacement)?

- a)  $\frac{1}{10}$
- b)  $\frac{7}{20}$
- c)  $\frac{2}{19}$
- d)  $\frac{3}{5}$
- e)  $\frac{7}{10}$

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

- a) 1
- b) 2
- c) 3
- d) 4
- e) 5

- 3) What is the slope of a line that is *perpendicular* to  $5x + 4y = 16$ ?

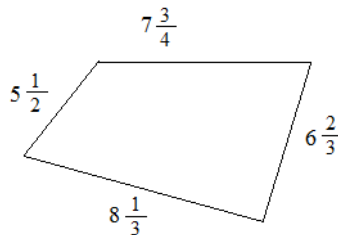
- a)  $-\frac{5}{4}$
- b)  $\frac{1}{5}$
- c)  $\frac{4}{5}$
- d)  $\frac{5}{4}$
- e) 5

- 4) After a 15% discount, you paid \$60 for a sweater. What is the original retail price?

- a) \$51
- b) \$69
- c) \$70.59
- d) \$75
- e) \$75.22

- 5) What is the perimeter of the quadrilateral?

- a)  $26\frac{1}{4}$
- b)  $26\frac{7}{17}$
- c)  $26\frac{7}{12}$
- d) 27
- e)  $28\frac{1}{4}$

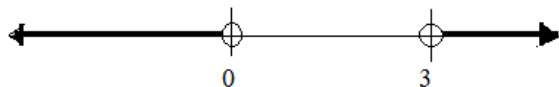


Algebra I Preview

6)  $10 = |x - 4| + 5$

- a) 9
- b) -1
- c) -1, 9
- d) 19
- e) -11, 19

7) Write an equation for the inequality:



- a)  $x \leq 0$  or  $x \geq 3$
- b)  $x < 0$  or  $x > 3$
- c)  $x < 0$  and  $x > 3$
- d)  $0 < x < 3$
- e)  $0 > x > 3$

8)  $2x(x + 9) - x + 3(x + 2)$

- a)  $5x + 15$
- b)  $7x + 14$
- c)  $2x^2 + 8x + 14$
- d)  $2(x^2 + 10x + 3)$
- e)  $2x^2 + 2x + 15$

9) Round to the nearest *tenth*: 5.3718

- a) 5.3
- b) 5.4
- c) 5.37
- d) 5.371
- e) 5.372

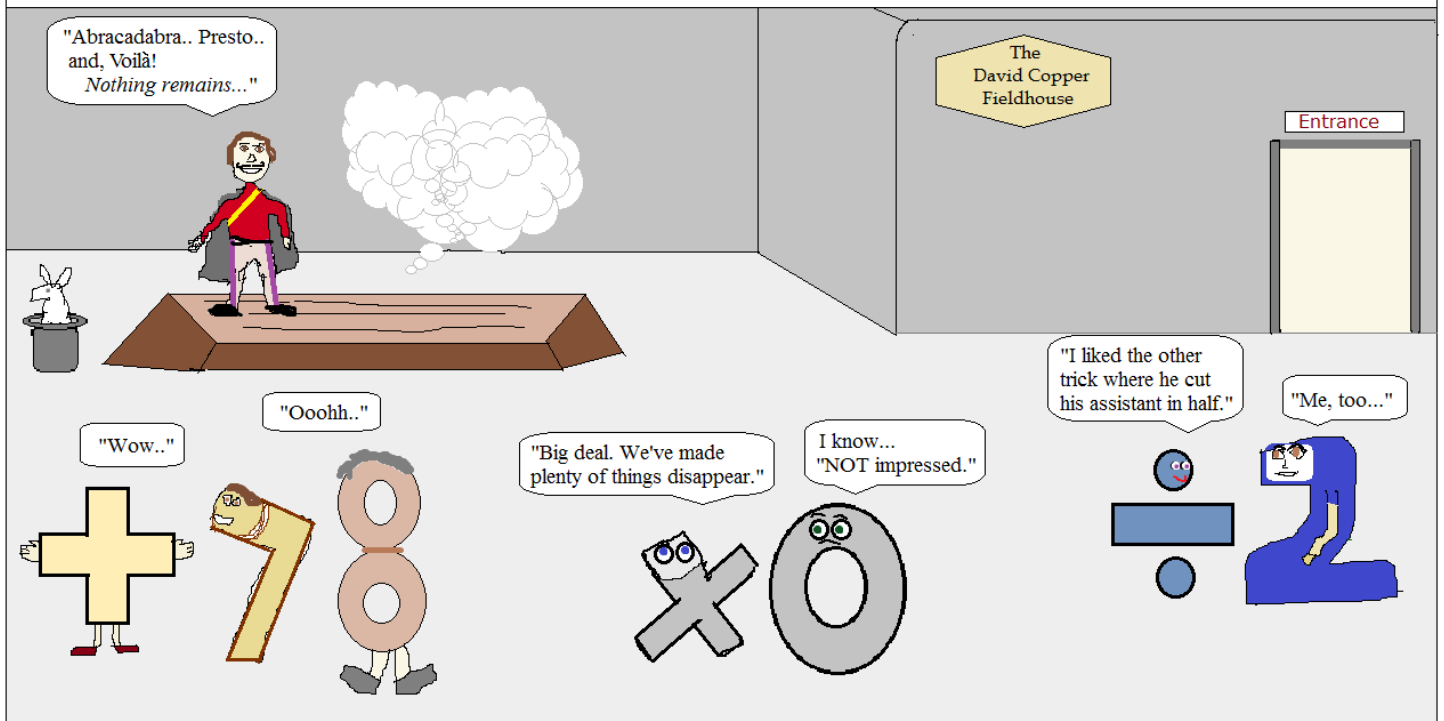
10) Simplify  $(2x^5)^3(7x^7)^2$

- a)  $14x^{17}$
- b)  $14x^{29}$
- c)  $84x^{17}$
- d)  $84x^{29}$
- e)  $392x^{29}$





(Hugh receives mixed reviews from the math figures in attendance.)



And, the solutions are...

## I. Decimals

$$\begin{array}{r} \text{a) } .3x + .6 = 1.2 \\ \quad - .6 \quad - .6 \\ \hline .3x = .6 \\ \quad .3 \quad .3 \end{array}$$

$$x = 2$$

$$\begin{array}{r} \text{b) } 2.07 + x = 6.14 \\ \quad - 2.07 \quad - 2.07 \end{array}$$

$$x = 4.07$$

$$\begin{array}{r} \text{c) } 4m + 2.4 = 3.2 \\ \quad - 2.4 \quad - 2.4 \end{array}$$

$$\frac{4m}{4} = \frac{.8}{4}$$

$$m = .2$$

$$\begin{array}{r} \text{d) } -21.5 + 11d = 11.5 \\ \quad +21.5 \quad +21.5 \\ \hline 11d = 33 \\ \quad 11 \quad 11 \end{array}$$

$$d = 3$$

$$\begin{array}{r} \text{e) } 23.01 + x = 52.10 \\ \quad - 23.01 \quad - 23.01 \end{array}$$

$$x = 29.09$$

$$\begin{array}{r} \text{f) } 3(2.4 + 1.1) = x + 2.3 \\ \quad 3(3.5) = x + 2.3 \\ \quad 10.5 = x + 2.3 \\ \quad -2.3 \quad -2.3 \end{array}$$

$$x = 8.2$$

## II. Fractions

$$\begin{array}{r} \text{a) } \frac{x}{8} = 24 \\ \text{(multiply both sides by 8)} \end{array}$$

$$x = 192$$

$$\begin{array}{r} \text{b) } -2 + \frac{x}{3} = \frac{1}{2} \\ \quad +2 \quad +2 \end{array}$$

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

(multiply each side by 3)

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

$$\begin{array}{r} \text{c) } \frac{2}{3}B + 8 = 14 \\ \quad -8 = -8 \end{array}$$

$$\frac{2}{3}B = 6$$

(multiply each side by reciprocal  $3/2$ )

$$B = 18/2 = 9$$

$$\begin{array}{r} \text{d) } 4(z + 2) = \frac{8}{3} \\ \text{multiply each side by } 1/4 \end{array}$$

$$z + 2 = \frac{8}{12}$$

$$\quad -2 \quad -2$$

$$z = \frac{-16}{12} = \frac{-4}{3}$$

$$\begin{array}{r} \text{e) } 7y = \frac{1}{14} \\ \text{divide each side by } 7 \end{array}$$

$$y = \frac{1}{14} \cdot \frac{1}{7}$$

$$y = \frac{1}{98}$$

$$\begin{array}{r} \text{f) } \frac{2m}{5} + 10 = 20 \\ \quad -10 \quad -10 \end{array}$$

$$\frac{2}{5}m = 10$$

multiply by reciprocal  $5/2$

$$m = 10 \cdot \frac{5}{2}$$

$$m = 25$$

## III. Negatives

$$\begin{aligned} \text{a) } y - 3 &= -8 \\ +3 \quad +3 \end{aligned}$$

$$y = -5$$

$$\text{b) } \frac{2r}{2} = \frac{-26}{2}$$

$$r = -13$$

$$\text{c) } \begin{aligned} 3x + 3 &= -9 \\ -3 \quad -3 \end{aligned}$$

$$\frac{3x}{3} = \frac{-12}{3}$$

$$x = -4$$

$$\text{d) } \begin{aligned} -(x + 5) &= 12 \\ \text{multiply both sides by } -1 \end{aligned}$$

$$\begin{aligned} x + 5 &= -12 \\ -5 \quad -5 \end{aligned}$$

$$x = -17$$

$$\text{e) } \begin{aligned} \frac{-x}{6} - 8 &= -12 \\ +8 \quad +8 \end{aligned}$$

$$\frac{-1}{6}x = -4$$

(multiply by -6)

$$x = 24$$

$$\text{f) } 2z - (-3) = -15$$

$$2z + 3 = -15$$

$$-3 \quad -3$$

$$2z = -18$$

(multiply by 1/2)

$$z = -9$$

## IV. Word Problems -- Set up each algebra equation and solve.

- a) Math books cost \$32.50 apiece. If you pay \$100 for 3 books, how much change will you receive?

$$\begin{aligned} \text{Let } C &= \text{change} & \$100 - (3 \text{ books} \cdot \$32.50/\text{book}) &= C \\ & & \$100 - (\$97.50) + C & \end{aligned}$$

$$C = \$2.50$$

- b) After 5 math tests, your average is 92. If your first four scores were 85, 93, 88, and 95, what was the score on your 5th test?

$$\text{Average} = \frac{\text{Total}}{\# \text{ of items}}$$

$$92 = \frac{(85 + 93 + 88 + 95 + F)}{5}$$

$$\text{multiply by } 5 \dots 460 = (85 + 93 + 88 + 95 + F)$$

$$460 = 361 + F$$

subtract 361...

$$F = 99$$

Let F = Fifth test

- c) Apples cost \$1 and oranges cost \$1.50 at the fruit stand. If I spend \$25 and take 7 apples, how many oranges did I buy?

$$\begin{aligned} A &= \# \text{ of apples} \\ O &= \# \text{ of oranges} \end{aligned}$$

$$A(\$1) + O(\$1.50) = \$25$$

$$7(\$1) + O(\$1.50) = \$25$$

$$\$7 + \$1.50(O) = \$25$$

$$\$1.50(O) = \$18 \quad \text{divide by } \$1.50$$

$$O = \frac{\$18}{\$1.50} = 12$$

- d) Gasoline is \$3.25 per gallon and my car can drive 30 miles per gallon. How much will a 360 mile trip cost?

$$\text{G} = \# \text{ of gallons} \quad G \cdot 30 \frac{\text{miles}}{\text{gallon}} = 360 \text{ miles}$$

divide each side by 30 miles/gallon

$$G = 12 \text{ gallons}$$

$$\text{Cost} = G \cdot \frac{\$3.25}{\text{gallon}}$$

$$= 12 \text{ gallons} \cdot \frac{\$3.25}{\text{gallon}} = \$39$$

Substitution --- Evaluate each equation.

Example:  $2e + 14 =$

if  $e = 3$

$2(3) + 14 = 20$

$e = 0$

$2(0) + 14 = 14$

$e = -1$

$2(-1) + 14 = 12$

a)  $2n \cdot 1 + 0 =$

if  $n = 0$

$2(0) \cdot 1 + 0 = 0$

$n = 4$

$2(4) \cdot 1 + 0 = 8$

$n = 10$

$2(10) \cdot 1 + 0 = 20$

1 is multiplicative identity; 0 is additive identity

b)  $(3w + 19) - 5 =$

if  $w = 1$

$(3 + 19) - 5 = 17$

$w = 0$

$(0 + 19) - 5 = 14$

$w = 2$

$(6 + 19) - 5 = 20$

c)  $\frac{3y}{3-y} =$

if  $y = 0$

$0/3 = 0$

$y = 2$

$6/1 = 6$

$y = 4$

$12/(-1) = -12$

d)  $\frac{v+1}{v-1} =$

if  $v = 0$

$1/(-1) = -1$

$v = 2$

$3/1 = 3$

$v = 7$

$8/6 = 4/3$

e)  $3(x + 4) - 2(x + 3) =$

if  $x = 6$

$3(10) - 2(9) = 12$

$x = 0$

$3(4) - 2(3) = 6$

$x = 1$

$3(5) - 2(4) = 7$

f)  $2z + 4(z + 1) =$

if  $z = -1$

$-2 + 4(0) = -2$

$z = 0$

$0 + 4(1) = 4$

$z = 5$

$10 + 4(6) = 34$

g)  $t^2 - 4t + 6 =$

if  $t = 4$

$16 - 16 + 6 = 6$

$t = 0$

$0 - 0 + 6 = 6$

$t = -2$

$4 + 8 + 6 = 18$

h)  $(k + 1)(k - 8) =$

if  $k = -2$

$(-1)(-10) = 10$

$k = 0$

$(1)(-8) = -8$

$k = 8$

$(9)(0) = 0$

Distributive Property problems

SOLUTIONS

1)  $3x - 5(x - 2) = 21$

$$3x - 5(x) - 5(-2) = 21$$

$$-2x + 10 = 21$$

$$-2x = 11$$

$$x = -11/2$$

2)  $-2(x - 5) + 8(2 - x) = 20$

$$-2(x - 5) + 8(2 - x) = 20$$

$$-2x + 10 + 16 - 8x = 20$$

$$-10x + 26 = 20$$

$$-10x = -6$$

$$x = 3/5$$

3)  $3(x + 2) - 6(4 - x) = 8x$

$$3(x) + 3(2) - 6(4) - 6(-x) = 8x$$

$$3x + 6 - 24 + 6x = 8x$$

$$9x - 18 = 8x$$

$$+18 \quad +18$$

$$9x = 8x + 18$$

$$x = 18$$

quick check: if  $x = 18$ ,

$$3(18 + 2) - 6(4 - 18) = 8(18)$$

$$60 - 6(-14) = 144$$

$$144 = 144 \checkmark$$

4)  $.2(10x - 12) = .3(x + 20) + .1$

distribute each side

$$2x - 2.4 = .3x + 6 + .1$$

collect like terms

$$1.7x = 8.5$$

multiply each side by 10 to move the decimals..

$$17x = 85$$

$$x = 5$$

quick check:

$$.2(38) = .3(25) + .1$$

$$7.6 = 7.5 + .1$$

$$7.6 = 7.6 \checkmark$$

5)  $\frac{3 + 4x}{2} = 7x - 6$

$$2 \left( \frac{3 + 4x}{2} \right) = 2(7x - 6)$$

$$3 + 4x = 14x - 12$$

$$15 = 10x$$

$$x = \frac{15}{10} = \frac{3}{2}$$

6)  $\frac{3 - 6x}{4} = \frac{2x + 1}{2}$

"cross multiply"

$$4(2x + 1) = 2(3 - 6x)$$

distribute the terms

$$4(2x) + 4(1) = 2(3) - 2(6x)$$

$$8x + 4 = 6 - 12x$$

$$20x = 2$$

$$x = \frac{1}{10}$$

7)  $\frac{1}{3}(3x + 6) = 5x - 2(x - 3)$

For ease, multiply equations by 3 to get rid of the fractions

$$(3x + 6) = 15x - 6(x - 3)$$

$$3x + 6 = 9x + 18$$

$$-12 = 6x$$

$$x = -2$$

8)  $-\frac{1}{4}(12x - 8) = \frac{1}{5}(15x + 5)$

For ease, multiply both sides by 20

$$-5(12x - 8) = 4(15x + 5)$$

Now, distribute each side...

$$-60x + 40 = 60x + 20$$

$$+60x - 20 \quad +60x - 20$$

$$0 + 20 = 120x + 0$$

$$x = \frac{1}{6}$$

9)  $\frac{2}{3}(18x - 6) = 4x$

multiply each side by reciprocal  $\frac{3}{2}$

$$18x - 6 = \frac{12}{2}x$$

$$12x = 6$$

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

10)  $\frac{4x + 7}{2} = \frac{6x + 5}{3}$

Cross-multiply

$$2(6x + 5) = 3(4x + 7)$$

Distribute the terms

$$12x + 10 = 12x + 21$$

$$0 = 11$$

NO SOLUTIONS!

11)  $2(x - 50) - 3x + 8 = x$

$$2x - 100 - 3x + 8 = x$$

$$-92 = 2x$$

$$x = -46$$

12)  $2x - 4(x + 5) = 3x + 10$


Distribute the terms (don't forget to distribute the negative)

$$2x - 4x - 20 = 3x + 10$$

$$-2x - 20 = 3x + 10$$

$$-5x = 30$$

$$x = -6$$

Formula	Solve for:	Bonus: What formula is this?
1) $d = rt$	$r = \frac{d}{t}$ $t = \frac{d}{r}$	Distance Formula Distance = Rate(Time)
2) $F = \frac{9}{5}C + 32$	$C = \frac{5}{9}(F - 32)$ $F - 32 = \frac{9}{5}C$ subtract 32 from both sides $\frac{5}{9}(F - 32) = C$ multiply both sides by 5/9	Temperature Converting Celsius to Fahrenheit
3) $P = 2L + 2W$	$L = \frac{P - 2W}{2}$ subtract 2W from both sides $W = \frac{P}{2} - L$ subtract 2L from both sides $P - 2W = 2L$ $P - 2L = 2W$ then, divide by 2              then, divide by 2	Perimeter of a Rectangle Perimeter = 2(length) + 2(width)
4) $m = \frac{y_2 - y_1}{x_2 - x_1}$	$y_2 = m(x_2 - x_1) + y_1$ $y_1 = y_2 - m(x_2 - x_1)$ $x_2 = \frac{y_2 - y_1}{m} + x_1$ $m(x_2 - x_1) = y_2 - y_1$ $m(x_2 - x_1) - y_2 = -y_1$ $(x_2 - x_1) = \frac{y_2 - y_1}{m}$	Slope of a line found from 2 points
5) $A = \frac{h(b_1 + b_2)}{2}$	$h = \frac{2A}{(b_1 + b_2)}$ $b_2 = \frac{2A}{h} - b_1$ $2A = h(b_1 + b_2)$ $2A = h(b_1 + b_2)$ $\frac{2A}{h} = (b_1 + b_2)$	Area of a Trapezoid
6) $a^2 + b^2 = c^2$ a, b, and c are > 0	$c = \sqrt{a^2 + b^2}$ $a = \sqrt{c^2 - b^2}$	Pythagorean Theorem (right triangles) 
7) $V = \frac{1}{3}\pi r^2 h$ all variables > 0	$h = \frac{3V}{\pi r^2}$ $r = \sqrt{\frac{3V}{\pi h}}$ $\frac{3V}{\pi} = r^2 h$	Volume of a cone where h = height r = radius of the base
8) $PV = nRT$	$R = \frac{PV}{nT}$ $P = \frac{nRT}{V}$	Ideal Gas Law (Physics)
9) $d = \sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2}$ $d^2 = (x_1 - x_2)^2 + (y_1 - y_2)^2$	$x_1 = \sqrt{d^2 - (y_1 - y_2)^2} + x_2$ $d^2 - (y_1 - y_2)^2 = (x_1 - x_2)^2$ $\sqrt{d^2 - (y_1 - y_2)^2} = (x_1 - x_2)$	Distance formula between two points
10) $(x - h)^2 + (y - k)^2 = r^2$	$x = \sqrt{r^2 - (y - k)^2} + h$ $k = -\sqrt{r^2 - (x - h)^2} + y$	Equation of a circle (h, k) is the center r is the radius

- 1) A bag of marbles has 4 blue, 6 red, and 10 white marbles.  
What is the probability of picking a blue marble and then a white marble (without replacement)?

a)  $\frac{1}{10}$

b)  $\frac{7}{20}$

c)  $\frac{2}{19}$

d)  $\frac{3}{5}$

e)  $\frac{7}{10}$

$$\text{probability} = \frac{\text{"\# of successes"}}{\text{"\# of possibilities"}}$$

$$\text{probability of 2 events occurring is } p(\text{event 1}) \times p(\text{event 2})$$

$$p(\text{blue marble}) = \frac{4}{20} \quad p(\text{white marble}) = \frac{10}{19}$$

$$\frac{4}{20} \cdot \frac{10}{19} = \frac{2}{19}$$

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

a) 1

b) 2

c) 3

d) 4

e) 5

$$\text{cross multiply} \quad (x+3) \cdot 2 = 5 \cdot x$$

$$2x + 6 = 5x$$

$$6 = 3x$$

$$x = 2$$

(plug into original equation to check)

- 3) What is the slope of a line that is
- perpendicular*
- to
- $5x + 4y = 16$
- ?

a)  $-5/4$

b)  $1/5$

c)  $4/5$

d)  $5/4$

e) 5

find  
slope  
of the line

$$5x + 4y = 16$$

$$4y = 16 - 5x$$

$$y = \frac{-5}{4}x + 4$$

since slope is  $-5/4$ , the slope of a perpendicular  
line is the *opposite reciprocal*

$$\frac{4}{5}$$

- 4) After a 15% discount, you paid \$60 for a sweater. What is the original retail price?

a) \$51

b) \$69

c) \$70.59

d) \$75

e) \$75.22

$$\text{original price} - (\text{discount}) = \text{sale price}$$

$$X - (.15)(X) = \$60$$

$$.85X = \$60$$

$$X = \$70.59$$

- 5) What is the perimeter of the quadrilateral?

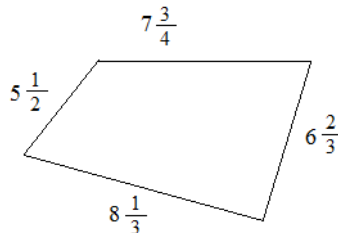
a)  $26\frac{1}{4}$

b)  $26\frac{7}{17}$

c)  $26\frac{7}{12}$

d) 27

e)  $28\frac{1}{4}$

perimeter is the  
sum of all sides..

add the whole numbers:

$$7 + 5 + 8 + 6 = 26$$

add the fractions:

$$\frac{3}{4} + \frac{1}{2} + \frac{1}{3} + \frac{2}{3} = 2\frac{1}{4}$$

Algebra I Preview

SOLUTIONS

6)  $10 = |x - 4| + 5$

Isolate the absolute value:

a) 9

b) -1

c) -1, 9

d) 19

e) -11, 19

$5 = |x - 4|$

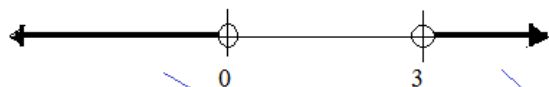
Then, "split the absolute value":

$5 = x - 4$       $x = 9$

$-5 = x - 4$       $x = -1$

(plug in both answers to check)

7) Write an equation for the inequality:



a)  $x \leq 0$  or  $x \geq 3$

b)  $x < 0$  or  $x > 3$

c)  $x < 0$  and  $x > 3$

d)  $0 < x < 3$

e)  $0 > x > 3$  not logical

any  $x < 0$  OR any  $x > 3$

8)  $2x(x + 9) - x + 3(x + 2)$

a)  $5x + 15$

b)  $7x + 14$

c)  $2x^2 + 8x + 14$

d)  $2(x^2 + 10x + 3)$

e)  $2x^2 + 2x + 15$

distribute (and get rid of parentheses):

$2x^2 + 18x - x + 3x + 6$

collect terms:

$2x^2 + 20x + 6$

taking out greatest common factor:

$2(x^2 + 10x + 3)$

9) Round to the nearest *tenth*: 5.3718

a) 5.3

b) 5.4

c) 5.37

d) 5.371

e) 5.372

5.4 is the nearest tenth..

5.37 is the nearest hundredth...

5.372 is the nearest thousands...

10) Simplify  $(2x^5)^3(7x^7)^2$

a)  $14x^{17}$

b)  $14x^{29}$

c)  $84x^{17}$

d)  $84x^{29}$

e)  $392x^{29}$

$(8x^{15}) \cdot (49x^{14})$

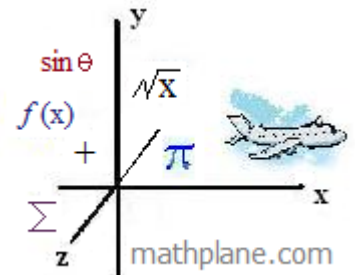
$392x^{29}$



Thanks for visiting. Hope it helped!

If you have questions, suggestions, or requests, let us know.

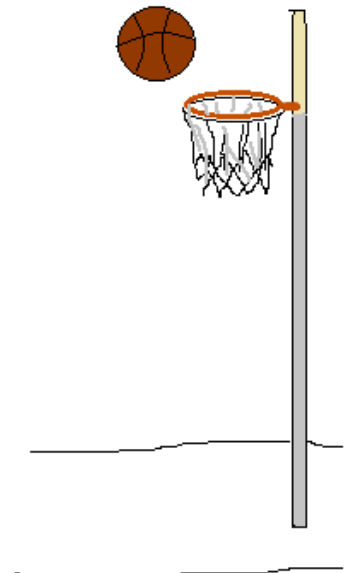
Cheers.



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Two more questions...

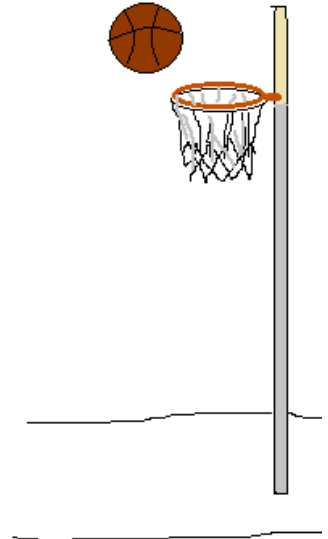
After 100 attempted free throws, my shooting percentage is 70%.  
How many shots in a row would I have to make to increase my percentage to OVER 80%?



How many missed shots in a row would lower the percentage to BELOW 60%?

Answers ->

After 100 attempted free throws, my shooting percentage is 70%.  
How many shots in a row would I have to make to increase my percentage to OVER 80%?



**Solution:** Since my shooting percentage is 70%, I've made 70 out of 100 attempts.

Let  $X$  = number of shots

$$\frac{\text{made shots}}{\text{attempts}} = \frac{70 + X}{100 + X} = \frac{80}{100} \quad 80\%$$

(cross multiply)  $100(70 + X) = 80(100 + X)$

$$7000 + 100X = 8000 + 80X$$

$$20X = 1000$$

$$X = 50$$

Therefore, 51 in a row would raise percentage OVER 80%

How many missed shots in a row would lower the percentage to BELOW 60%?

**Solution:**

$$\frac{\text{made shots}}{\text{attempts}} = \frac{70 + 0}{100 + X} = \frac{60}{100}$$

(cross multiply)  $70(100) = 60(100 + X)$

$$7000 = 6000 + 60X$$

$$1000 = 60X$$

$$X = 16.667$$

Therefore, missing 17 shots in a row would drop the percentage under 60%