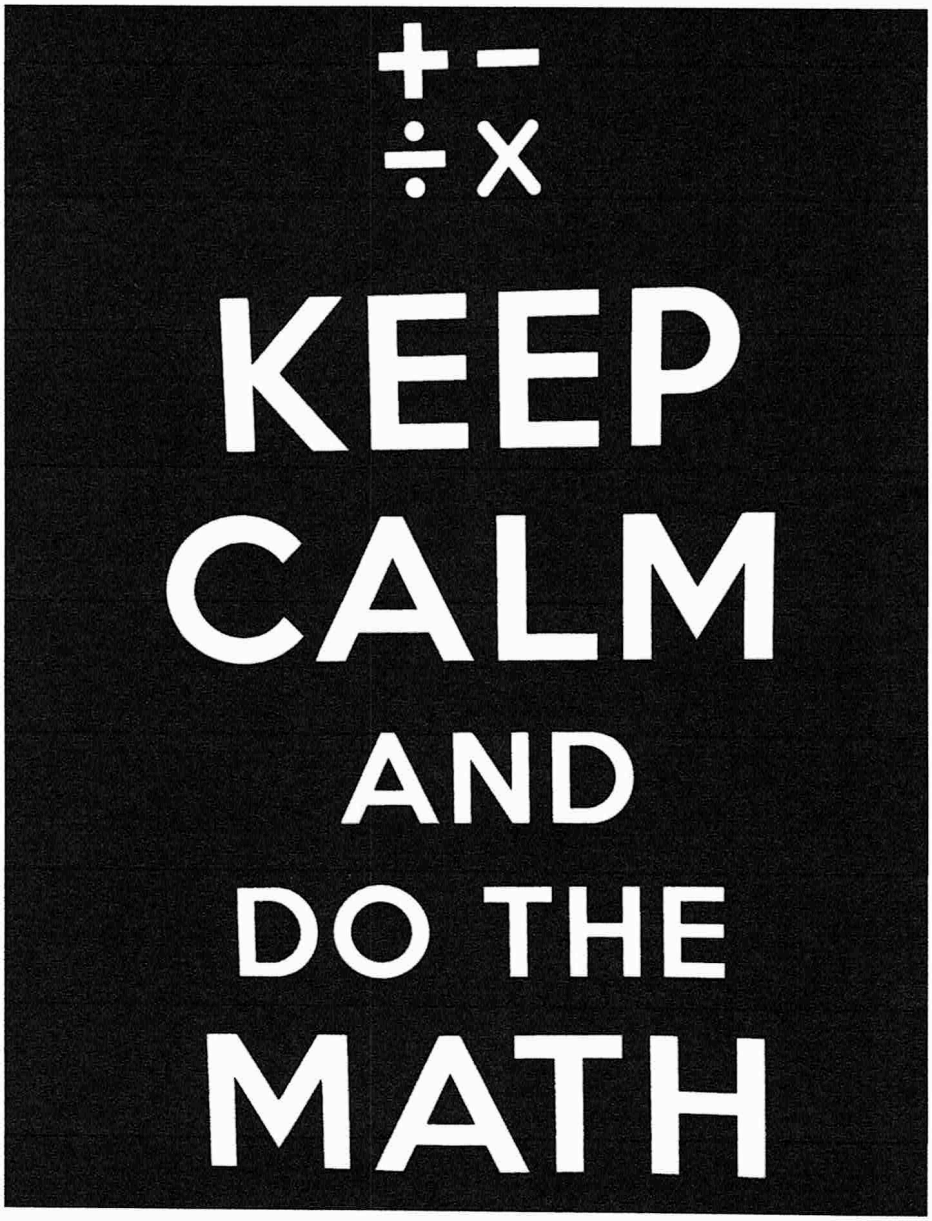
NOMBRE: _____

P.A.T Prep

Equations

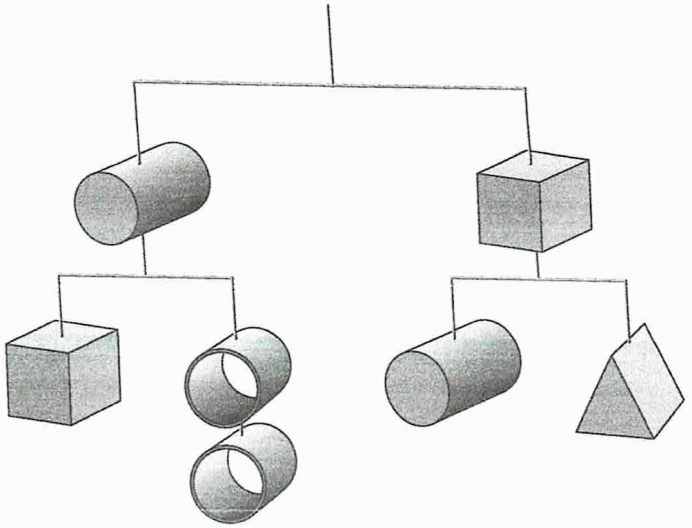


St. Brendan School

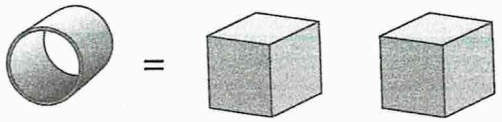
Mr. Martínez

EQUATIONS

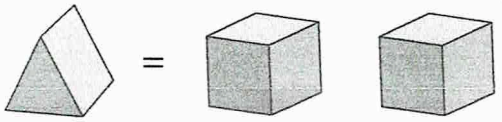
The following diagram represents a balanced mobile.



34. Which of the following equations correctly represents the relationship between some of the objects shown in the diagram above?

A. 

B. 

C. 

D. 

- Balanced means Right side = left side
- EQUIVALENT means
  - Same Terms
    - Same Variable + exponent
    - Same Coefficient

$2.15x + 7.8 = 25$

24. Which of the following equations is equivalent to the equation shown above?

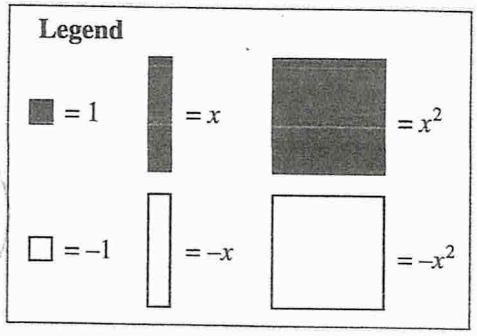
A. $215x + 780 = 2\,500$

B. $215x + 780 = 250$

C. $215x + 78 = 2\,500$

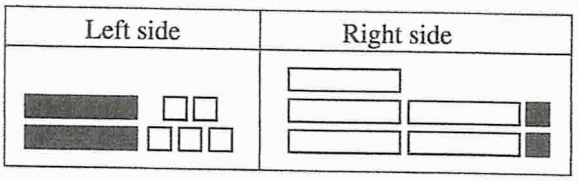
D. $215x + 78 = 25$

Remember
$-x = 2$
is the same as
$x = -2$



Strategy 1
- Convert to numbers and letters
- Solve

The left and right sides of an equation are represented below.



9. The solution to the equation above can be represented by

A. ▬ = ■

B. ▬ = ■ ■

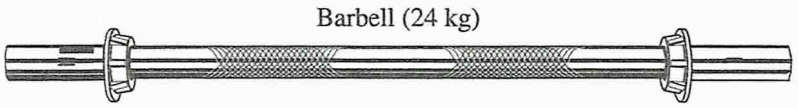
C. ▬ = □

D. ▬ = □ □

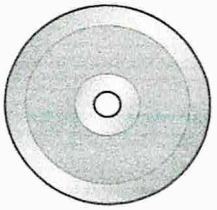
- Remember that, at the end, you MUST only have Rectangles on one side AND squares on the other

Strategy 2
- Eliminate all Rectangles on Right by bringing in Rectangles to make zero pairs.
- Whatever you bring to one side you must bring to the other.
* Make zero pairs
- Eliminate left squares on by bringing squares to make zero pairs
- Repeat as above

A weight-lifter adds a certain number of equally weighted plates to the barbell shown below. The weighted plates are identical to one another.



One weighted plate (? kg)

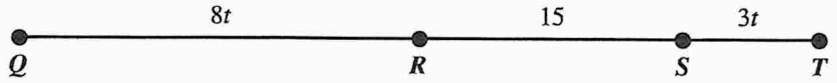


A. 36 kg
B. 12 kg
C. 6 kg
D. 4 kg

If the total mass of the barbell and plates equals 60 kg, and if each side of the barbell has the same number of plates, then one weighted plate could have a mass of

Setting Up an Equation When Parts are Known

Line segment QT is 48 units.



1. Which of the following linear equations represents the length of line segment QT?

A. $5t + 15 = 48$
B. $11t + 15 = 48$
C. $5t - 15 = 48$
D. $11t - 15 = 48$

The total length of time it takes for a single passenger train to travel between Vancouver and Toronto is 80 h.

Starting Location	Ending Location	Time (h)
Vancouver	Jasper	$\frac{5}{9}x$
Jasper	Winnipeg	$\frac{2}{3}x$
Winnipeg	Toronto	x

21. How long does it take the train to travel between Winnipeg and Toronto?

A. 24 h
B. 36 h
C. 44 h
D. 53 h

Numerical Response

8. At a picnic for 49 people, 4 families each brought an equal number of lawn chairs. If 5 more lawn chairs were still needed, then how many chairs did each family bring?

Answer: _____

The relationship between two variables is given in the equation $35 + 15n = A$.

22. Which of the following situations could be represented using the equation above?

A. The price of a caterer for a party is \$35 for each dinner ordered and \$15 for each dessert ordered.

B. The bill for framing a painting is \$35 for each square metre of glass required and \$15 for the wooden frame.

C. The fee for a computer consultant is \$15 for an administration charge and \$35 for each hour worked.

D. The cost of silk screening a design on T-shirts is \$15 for each shirt created and a \$35 design fee.

Notice that
- Constants have no variable attached to them
- Constant are things like:
  - one-time fee
  - down payment

18. Marc has a certain number of coins that are dimes, d, and quarters, q. Which of the following expressions represents the value of Marc's money in cents?

quarter = 25 cents
Dime = 10 cents

A. $10d + 25q$

B. $35(d + q)$

C. $35d + q$

D. $d + q$

Alice works 8 hours a day as a waitress in a restaurant. She earns \$12.50 an hour plus money received from tips, t.

23. Which of the following equations represents Alice's total earnings, E, for one day of work?

A. $E = 8(12.50) + t$

B. $E = 8(12.50 + t)$

C. $E = 8t + 12.50$

D. $E = 8 + 12.50t$

Catherine sells cupcakes, c, for \$1.50 each. The ingredients for each cupcake cost her \$0.30, and the sum of all of her other expenses is \$20.00/month.

6. Which of the following expressions represents Catherine's profit each month?

A. $1.5c - (20 + 0.3c)$

B. $20c - (1.5 + 0.3c)$

C. $(20 + 0.3c) - 1.5c$

D. $(1.5 + 0.3c) - 20c$

SOLVE BY SUBSTITUTION

The amount of money, A, Hanna receives selling bracelets, b, at a local market is represented by the relation $A = 5b$. Her expenses, E, for making the bracelets are represented by the relation $E = 20 + b$.

9. What is the minimum number of bracelets that Hanna needs to sell to pay for her expenses?

A. 4 bracelets

B. 5 bracelets

C. 6 bracelets

D. 7 bracelets