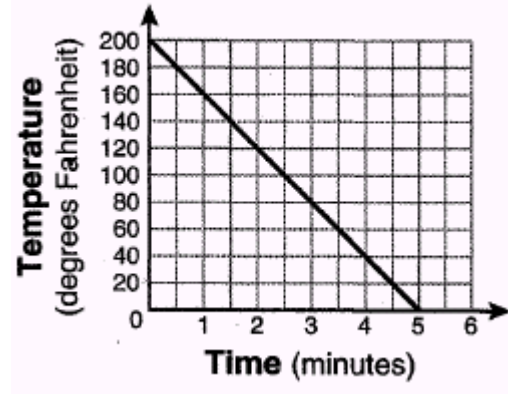


Choice 1, above is the correct graph. It shows the coffee gradually cooling.



Choice 2, above shows the coffee cooling off, but getting too cold.

ANSWER: (1)

6) What is the solution of $\frac{k + 4}{2} = \frac{k + 9}{3}$?

- (1) 1
- (2) 5
- (3) 6
- (4) 14

As in question 2 on this Regents, cross-multiply.

$$\begin{aligned}
 2(k + 9) &= 3(k + 4) && \text{Use the distributive property.} \\
 2k + 18 &= 3k + 12 && \text{Subtract 12 from both sides.} \\
 2k + 6 &= 3k && \text{Subtract 2k from both sides.} \\
 6 &= k
 \end{aligned}$$

ANSWER: (3)

7) Alex earned scores of 60, 74, 82, 87, 87, and 94 on his first six algebra tests. What is the relationship between the measures of central tendency of these scores?

- (1) median < mode < mean
- (2) mean < mode < median
- (3) mode < median < mean
- (4) mean < median < mode

First find the mean, median, and mode for the above scores.

The mean will be the average of the 6 tests.

$$60 + 74 + 82 + 87 + 87 + 94 = 484 \quad 484 \div 6 = 80.6\dots \quad \text{Mean} = 80.6\dots$$

Median is the middle score. Make sure that the scores are in order. They are.

Given an even number of data items, the median is the average of the middle two.

$$82 + 87 = 169 \quad 169 \div 2 = 84.5 \quad \text{Median} = 84.5$$

Mode is the item that appears most often.

$$\text{Mode} = 87$$

The mean is less than the median, which is less than the mode.

ANSWER: (4)

- 8) **The New York Volleyball Association invited 64 teams to compete in a tournament. After each round, half of the teams were eliminated. Which equation represents the number of teams, t , that remained in the tournament after r rounds?**

(1) $t = 64(r)^{0.5}$

(3) $t = 64(1.5)^r$

(2) $t = 64(-0.5)^r$

(4) $t = 64(0.5)^r$

This problem falls under the heading of exponential functions, and more specifically, exponential decay. This is so because in the above problem, the amount you are starting with, 64, will be decreasing at a constant rate.

64 (0.5) represents half of 64.

Half of that would be **64 (0.5) (0.5)** or **64(0.5)²**.

And half of that would be **64 (0.5) (0.5) (0.5)** or **64(0.5)³**

As you can see, the exponent will equal the number of rounds.

In the above problem the number of rounds is represented by r . Choice 4 is your answer.

ANSWER: (4)

- 9) **The expression $9x^2 - 100$ is equivalent to**

(1) $(9x - 10)(x + 10)$

(3) $(3x - 10)(3x - 1)$

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

(4) $(9x - 100)(x + 1)$

This problems requires you to factor the difference of two squares.

$9x^2$ is a perfect square since its square root is **$3x$** .

100 is a perfect square since its square root is **10**.

This type of binomial is factored as the product of the sum and difference of those two roots:

$(3x - 10)(3x + 10)$

ANSWER: (2)

- 10) **What is an equation of the line that passes through the points (3, -3) and (-3, -3)?**

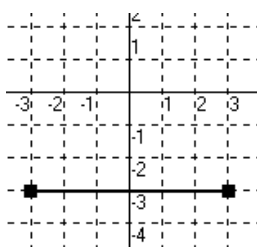
(1) $y = 3$

(3) $y = -3$

(2) $x = -3$

(4) $x = y$

Below is what the two points look like on the coordinate plane.



The y-coordinate of -3 is constant.

The line is parallel to the x-axis.

The equation of the line would therefore be $y = -3$

ANSWER: (3)

- 11) *If the formula for the perimeter of a rectangle is $P = 2l + 2w$, then w can be expressed as*

$$(1) w = \frac{2l - P}{2}$$

$$(3) w = \frac{P - l}{2}$$

$$(2) w = \frac{P - 2l}{2}$$

$$(4) w = \frac{P - 2w}{2l}$$

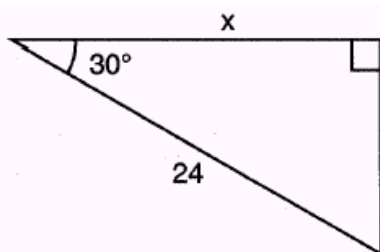
$P = 2l + 2w$ Subtract $2l$ from both sides.

$P - 2l = 2w$ Divide both sides by 2

$$\frac{P - 2l}{2} = w$$

ANSWER: (2)

- 12) *In the right triangle shown in the diagram below, what is the value of x to the nearest whole number?*



(1) 12

(3) 21

(2) 14

(4) 28

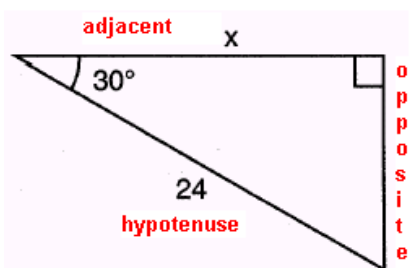
Sine, cosine, and tangent are ratios involving the sides of a right triangle.

$$\sin = \frac{\text{opposite}}{\text{hypotenuse}}$$

$$\cos = \frac{\text{adjacent}}{\text{hypotenuse}}$$

$$\tan = \frac{\text{opposite}}{\text{adjacent}}$$

Here is the above triangle again with the sides labeled relative to the given angle. The hypotenuse is always the side opposite the right angle.



You see that the adjacent side is x , and the hypotenuse is 24. You therefore need the trigonometric ratio that deals with adjacent and hypotenuse. It is the cosine ratio:

$$\cos = \frac{\text{adjacent}}{\text{hypotenuse}}$$

$$\cos 30 = \frac{x}{24} \quad \text{Multiply both sides by 24.}$$

$$24 (\cos 30) = x$$

$$20.78460969 = x$$

Use calculator to solve for x .
Round to nearest whole number

$$24 * \cos(30)$$

$$20.78460969$$

$$21 = x$$

ANSWER: (3)

- 13) **What is the slope of the line that passes through the points (2,5) and (7,3)?**

(1) $-\frac{5}{2}$

(3) $\frac{8}{9}$

(2) $-\frac{2}{5}$

(4) $\frac{9}{8}$

The slope is easily found by subtracting the two given y-coordinates, and the two x-coordinates. The difference of the y-coordinates will be the numerator of the slope, while the difference of the x-coordinates will be its denominator.

$$y_1 = 5 \quad Y_2 = 3 \quad y_1 - Y_2 = 5 - 3 = 2 \text{ (numerator)}$$

$$X_1 = 2 \quad X_2 = 7 \quad X_1 - X_2 = 2 - 7 = -5 \text{ (denominator)}$$

$$\text{The slope} = -\frac{2}{5}$$

ANSWER: (2)

- 14) **What are the roots of the equation $x^2 - 10x + 21 = 0$?**

(1) 1 and 21

(3) 3 and 7

(2) -5 and -5

(4) -3 and -7

Factor the given trinomial. Then set the factors equal to 0, and solve for x.

$$x^2 - 10x + 21 = 0 \quad \text{Factor}$$

$$(x - 7)(x - 3) = 0 \quad \text{Set each factor equal to 0 and solve.}$$

$$x - 7 = 0 \quad \text{Add 7 to both sides.} \\ x = 7$$

$$x - 3 = 0 \quad \text{Add 3 to both sides.} \\ x = 3$$

ANSWER: (3)

- 15) **Rhonda has \$1.35 in nickels and dimes in her pocket. If she has six more dimes than nickels, which equation can be used to determine x, the number of nickels she has?**

(1) $0.05(x + 6) + 0.10x = 1.35$

(2) $0.05x + 0.10(x + 6) = 1.35$

(3) $0.05 + 0.10(6x) = 1.35$

(4) $0.15(x + 6) = 1.35$

Let x = number of nickels.

Then x+6 = number of dimes. There are six more dimes than nickels.

To find the value of the nickels we have to multiply their number by 0.05 -- 5 cents.

The total value of x nickels will therefore be **0.05x**.

To find the value of the dimes we have to multiply their number by 0.10 -- 10 cents.

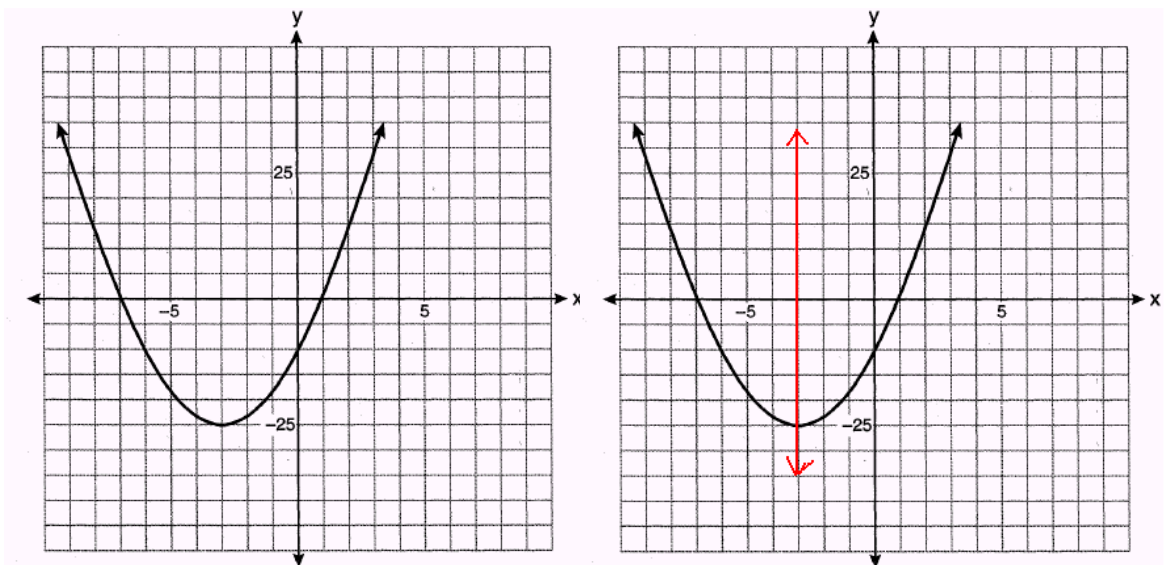
The total value of x+6 dimes will therefore be **0.10(x+6)**.

According to the problem, the total value of the nickels and dimes is \$1.35.

$$\text{The equation would therefore be: } 0.05x + 0.10(x + 6) = 1.35$$

ANSWER: (2)

- 16) Which equation represents the axis of symmetry of the graph of the parabola below?



(1) $y = -3$

(3) $y = -25$

(2) $x = -3$

(4) $x = -25$

The first parabola, above to the left, is the one shown on your regents. The one to the right with the red line drawn is the parabola with its axis of symmetry added and highlighted. The axis of symmetry in the above case is the vertical line about which the parabola is symmetric. Its equation, as you can see is $x = -3$. **ANSWER: (2)**

- 17) The set $\{1,2,3,4\}$ is equivalent to

(1) $\{x \mid 1 < x < 4, \text{ where } x \text{ is a whole number}\}$

(2) $\{x \mid 0 < x < 4, \text{ where } x \text{ is a whole number}\}$

(3) $\{x \mid 0 < x \leq 4, \text{ where } x \text{ is a whole number}\}$

(4) $\{x \mid 1 < x \leq 4, \text{ where } x \text{ is a whole number}\}$

The elements 1 and 4, as well as 2 and 3 are included in the set.

Choice 1 means that x is between 1 and 4. It does not include 1 or 4.

Choice 2 says that x is less than 4. It does not include 4.

Choice 4 says that x is greater than 1. It does not include 1.

Choice 3 reads: **The set of all x , such that x is greater than 0, and less than or equal to 4.**

ANSWER: (3)

- 18) What is the value of x in the equation $\frac{2}{x} - 3 = \frac{26}{x}$?

- (1) -8 (3) $\frac{1}{8}$
 (2) $-\frac{1}{8}$ (4) 8

You can get rid of the denominators by multiplying each terms by x . The x 's will cancel.

$$\frac{2(x)}{x} - 3(x) = \frac{26(x)}{x}$$

$$\frac{2(\cancel{x})}{\cancel{x}} - 3(x) = \frac{26(\cancel{x})}{\cancel{x}}$$

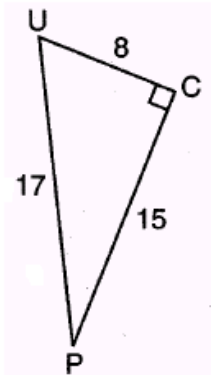
$$2 - 3x = 26 \quad \text{Subtract 2 from each side.}$$

$$-3x = 24 \quad \text{Divide each side by -3.}$$

$$x = -8$$

ANSWER: (1)

- 19) The diagram below shows right triangle UPC .



Which ratio represents the sine of $\angle U$?

- (1) $\frac{15}{8}$ (3) $\frac{8}{15}$
 (2) $\frac{15}{17}$ (4) $\frac{8}{17}$

As in problem 12, here are the trigonometric ratios again.

$$\sin = \frac{\text{opposite}}{\text{hypotenuse}}$$

$$\cos = \frac{\text{adjacent}}{\text{hypotenuse}}$$

$$\tan = \frac{\text{opposite}}{\text{adjacent}}$$

This problem is asking you for the sine of angle U .

Using angle U , the side of 15 is opposite.

The side of 17 is the hypotenuse.

$$\sin = \frac{\text{opposite}}{\text{hypotenuse}} = \frac{15}{17} \quad \sin U = \frac{15}{17}$$

ANSWER: (2)

- 20) What is $\sqrt{72}$ expressed in simplest radical form?

- (1) $2\sqrt{18}$ (3) $6\sqrt{2}$
 (2) $3\sqrt{8}$ (4) $8\sqrt{3}$

In order to simplify radicals you try to factor them using perfect squares.

$$\sqrt{72} = \sqrt{36} \cdot \sqrt{2} = 6\sqrt{2}$$

ANSWER: (3)

21) What is $\frac{6}{5x} - \frac{2}{3x}$ in simplest form?

(1) $\frac{8}{15x^2}$

(3) $\frac{4}{15x}$

(2) $\frac{8}{15x}$

(4) $\frac{4}{2x}$

The lowest common denominator is $15x$.

Multiply the first fraction by $\frac{3}{3}$ to obtain that denominator.

Multiply the second fraction by $\frac{5}{5}$ to obtain that denominator.

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

$$\frac{6}{5x} \left(\frac{3}{3}\right) - \frac{2}{3x} \left(\frac{5}{5}\right) \text{ Multiply.}$$

$$\frac{18}{15x} - \frac{10}{15x} \quad \text{Combine}$$

$$\frac{8}{15x}$$

ANSWER: (2)

22) Which ordered pair is a solution of the system of equations $y = x^2 - x - 20$ and $y = 3x - 15$

(1) $(-5, -30)$

(3) $(0, 5)$

(2) $(-1, -18)$

(4) $(5, -1)$

Algebraic solution: Since both equations equal y , they are equal to each other.

$$x^2 - x - 20 = 3x - 15 \quad \text{Subtract } 3x \text{ from both sides.}$$

$$x^2 - 4x - 20 = -15 \quad \text{Add } 15 \text{ to both sides.}$$

$$x^2 - 4x - 5 = 0 \quad \text{Factor.}$$

$$(x + 1)(x - 5) = 0 \quad \text{Set each factor equal to } 0 \text{ and solve for } x.$$

$$x + 1 = 0 \quad \text{Subtract } 1 \text{ from each side.}$$

$$x = -1$$

$$x - 5 = 0$$

$$\text{Add } 5 \text{ to each side.}$$

$$x = 5$$

Now use each x to solve for a corresponding y .

$$x = -1$$

$$y = 3x - 15 \quad \text{Substitute } -1 \text{ for } x.$$

$$y = 3(-1) - 15 \quad \text{Simplify.}$$

$$y = -3 - 15$$

$$y = -18$$

The solution sets are $(-1, -18)$ and $(5, 0)$

$$x = 5$$

$$y = 3x - 15 \quad \text{Substitute } 5 \text{ for } x.$$

$$y = 3(5) - 15 \quad \text{Simplify.}$$

$$y = 15 - 15$$

$$y = 0$$

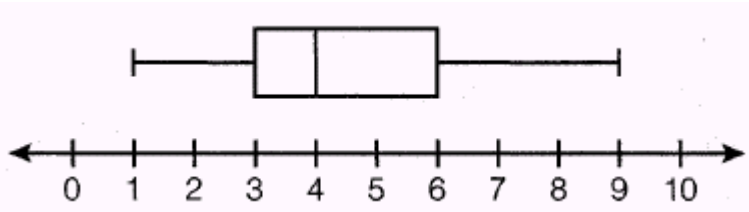
ANSWER: (2)

The wheel is divided into 8 equal sections. One of these sections is orange.
 The probability of the spinner landing on orange is therefore $\frac{1}{8}$.
 Using what is known as the counting principle, the probability of spinning orange twice, will be the probability of the first spin times the probability of the second spin.
 Since the probability of each spin landing on orange is $\frac{1}{8}$, then the probability of it landing on orange on both spins is:

$$\frac{1}{8} \cdot \frac{1}{8} = \frac{1}{64}$$

ANSWER: (1)

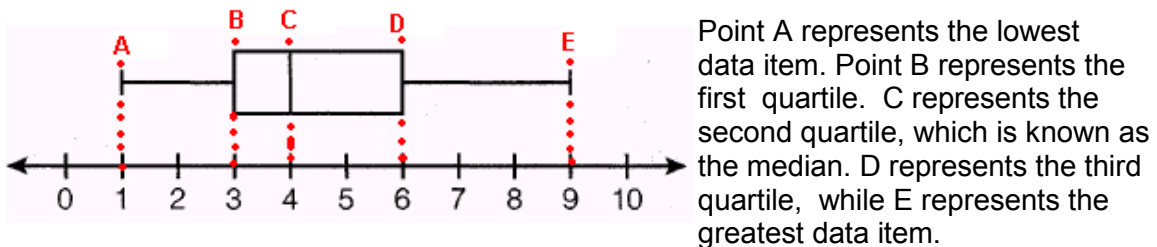
- 29) **A movie theater recorded the number of tickets sold daily for a popular movie during the month of June. The box-and-whisker plot shown below represents the data for the number of tickets sold, in hundreds.**



Which conclusion can be made using this plot?

- (1) **The second quartile is 600.**
- (2) **The mean of the attendance is 400.**
- (3) **The range of the attendance is 300 to 600.**
- (4) **Twenty-five percent of the attendance is between 300 and 400.**

Here is some information regarding box-and-whisker plots.

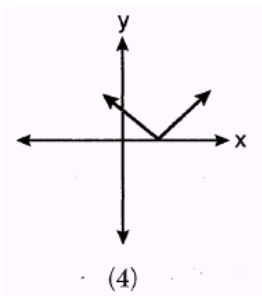
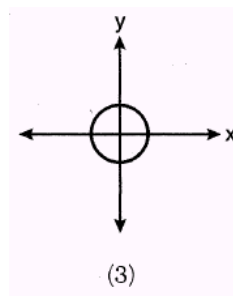
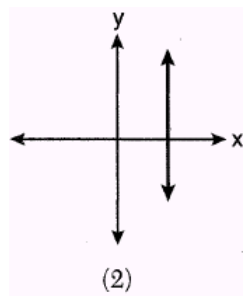
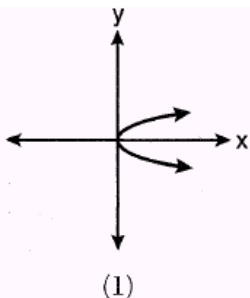


Point A represents the lowest data item. Point B represents the first quartile. C represents the second quartile, which is known as the median. D represents the third quartile, while E represents the greatest data item.

Each quartile represents $\frac{1}{4}$ or 25%. Therefore, from point B (300) which represents the first quartile, to point C (400) which represents the second quartile, is 25% of the attendance.

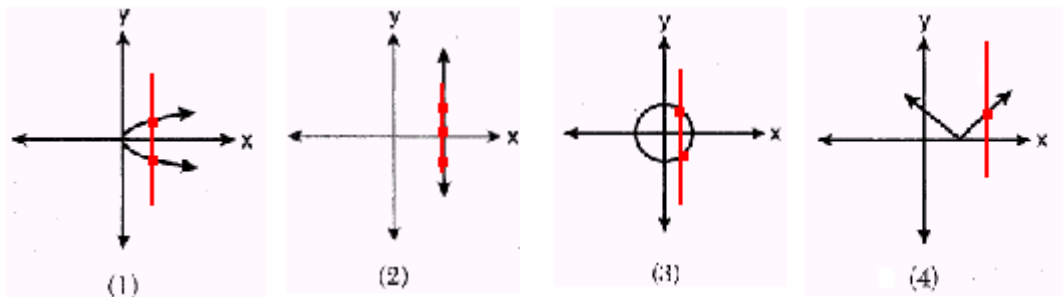
ANSWER: (4)

- 30) **Which graph represents a function?**



A function is a relation in which every element in the domain will correspond to exactly one element in the range. When looking at a set of ordered pairs defining a function, no two different y -coordinates can share the same x -coordinate. This means that any x -value will result in one unique y -value.

When presented with a graph it is therefore easy to determine if it represents a function. If you can draw a vertical line and have the line intersect more than one point, then the graph does not represent a function.



As you see above, in choices 1, 2, 3, a vertical line does intersect at least 2 points. Those choices fail the vertical line test and are not functions. Now look at choice 4. Any vertical line drawn there intersects only one point. Choice 4 is the graph which represents a function. You should have recognized it as an absolute value function.

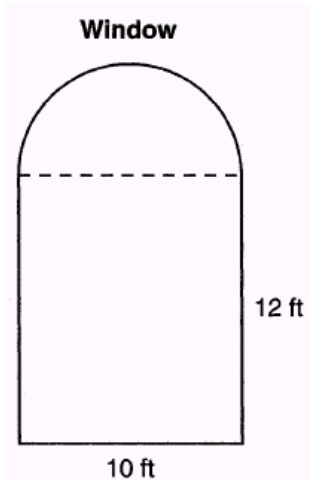
ANSWER: (4)

PART II

begins on the next page...

PART II

- 31) *A window is made up of a single piece of glass in the shape of a semicircle and a rectangle, as shown in the diagram below. Tess is decorating for a party and wants to put a string of lights all the way around the outside edge of the window.*



To the nearest foot, what is the length of the string of lights that Tess will need to decorate the window?

Since the lights are going around the window, this is a problem involving perimeter.

The window at the left is made up of a 10x12 rectangle, and a semicircle. As you can see, only 3 sides of the rectangle will have lights. They are the sides of:

12 + 10 + 12 for a total of **34 ft**. The remaining side is that of the semicircle.

The formula for finding the circumference of a circle is πd . You simply multiply the diameter by the value of "pi." In our case, since we are dealing with a semicircle, the formula would be $\pi d/2$.

Use your calculator to multiply the diameter by pi and then divide by 2.

The diameter of the circle is equal to 10, the same as the width of the rectangle.

$(10 \cdot \pi) / 2 = 15.70796327$. Add the 34 from the 3 sides of the rectangle and round your answer to the nearest foot.

$$\begin{array}{r} (10 \cdot \pi) / 2 \\ 15.70796327 \\ \text{Ans} + 34 \\ \hline 49.70796327 \end{array}$$

ANSWER: 50 feet

- 32) **Simplify:** $\frac{27k^5m^8}{(4k^3)(9m^2)}$ Divide 27 in the numerator by 9 in the denominator.

$$\frac{3k^5m^8}{4k^3m^2}$$

Divide k^5 by k^3 . (Subtract when dividing powers.)

$$\frac{3k^2m^8}{4m^2}$$

Divide m^8 by m^2 .

$$\frac{3k^2m^6}{4}$$

ANSWER: $\frac{3k^2m^6}{4}$

- 33) *The table below represents the number of hours a student worked and the amount of money the student earned.*

Number of Hours (h)	Dollars Earned (d)
8	\$50.00
15	\$93.75
19	\$118.75
30	\$187.50

Write an equation that represents the number of dollars, d, earned in terms of the number of hours, h, worked.

Using this equation, determine the number of dollars the student would earn for working 40 hours.

First determine how much the student earns per hour.

$$50.00 \div 8 = 6.25$$

The student earns \$6.25 per hour. In other words, if you want to determine how many dollars the student earned, you multiply the number of hours by 6.25.

In the above problem you are told that d represents dollars earned, and h represents hours worked.

ANSWER to first part: $d = 6.25h$

Now you are told to use your equation to determine the amount earned for 40 hours.

$$d = 6.25h \quad \text{Substitute 40 for h.}$$

$$d = 6.25(40) \quad \text{Multiply.}$$

$$d = 250$$

ANSWER to second part: \$250

PART III begins on next page...

PART III

- 34) ***Sarah measures her rectangular bedroom window for a new shade. Her measurements are 36 inches by 42 inches. The actual measurements of the window are 36.5 inches and 42.5 inches.***

Using the measurements that Sarah took, determine the number of square inches in the area of the window.

To find the area of a rectangle, find the product of the length and width

Her measurements were 36 by 42.

$$36 (42) = 1512$$

ANSWER: The area using Sarah's measurements is 1512 square inches.

Determine the number of square inches in the actual area of the window.

The actual measurements are 36.5 by 42.5.

The actual area is :

$$36.5 (42.5) = 1551.25$$

ANSWER: Actual area of window is 1551.25 square inches.

Determine the relative error in calculating the area. Express your answer as a decimal to the nearest thousandth.

The relative error will be the difference in both measures divided by the actual measure.

The actual measure minus Sarah's measure is $1551.25 - 1512 = 39.25$.

Now divide 39.25 by 1551.25, the actual measure, to obtain the relative error.

$$39.25 \div 1551.25 = 0.02530$$

ANSWER: .025 to the nearest thousandth.

- 35) ***Perform the indicated operation and simplify:***

$$\frac{3x + 6}{4x + 12} \div \frac{x^2 - 4}{x + 3} = \text{Multiply the first fraction by reciprocal of the second fraction.}$$

$$\frac{3x + 6}{4x + 12} \cdot \frac{x + 3}{x^2 - 4} = \text{Factor where possible.}$$

$$\frac{3(x + 2)}{4(x + 3)} \cdot \frac{x + 3}{(x + 2)(x - 2)} = \text{The } x+2 \text{ in numerator and denominator will cancel, and the } x+3 \text{ in numerator and denominator will cancel as well.}$$

$$\frac{3}{4} \cdot \frac{1}{x - 2} \quad \text{Multiply.}$$

$$\text{ANSWER: } \frac{3}{4(x - 2)} \text{ or } \frac{3}{4x - 8}$$

- 36) ***A soup can is in the shape of a cylinder. The can has a volume of 342 cm^3 and a diameter of 6 cm. Express the height of the can in terms of π .***

The volume of a cylinder is given on your reference sheet. It is $V = \pi r^2 h$.

This means that to obtain its volume, all you have to do is square the radius of the cylinder and multiply the result by its height, and then by "pi."

In the above problem you are given the diameter of the cylinder. You should immediately know that its **radius** will be half of the diameter, or **3 cm**.

You are also given the volume of the cylinder. Set up your equation.

$$V = \pi r^2 h \quad \text{Substitute 342 for V, and 3 for r.}$$

$$342 = \pi (3)^2 (h) \quad \text{Square the 3}$$

$$342 = \pi (9)(h) \quad \text{To solve for h, divide both sides by } 9\pi.$$

$$\frac{38}{\pi} = h \quad \text{ANSWER: } h = \frac{38}{\pi} \text{ cm.}$$

Determine the maximum number of soup cans that can be stacked on their base between two shelves if the distance between the shelves is exactly 36 cm, Explain your answer.

You have just figured out the height of the can, and are told that the distance between two shelves is 36 cm. What you have to do now is determine how many of these heights will fit into a space of 36. In other words, you are looking for the answer to $36 \div h$.

You will substitute the answer obtained above for h. Use your calculator.

To make life easier, first determine the height of the can: $38 \div \pi$ 12.09577567

Now to determine how many 12.09577567 go into 36...

Enter 36 followed by \div followed by 2nd ANS: $38 \div \pi$ 12.09577567
 $36 \div \text{Ans}$ 2.976245672

2.976245672 cans will fit in the space between the shelves. However, one does not cut cans into fractional parts to fit them on shelves. Things would get quite messy.

ANSWER: 2 cans will fit in a stack between the two shelves.

PART IV

- 37)
- Solve the following system of equations algebraically:**

$$3x + 2y = 4$$

$$4x + 3y = 7$$

[Only an algebraic solution can receive full credit.]

One way of solving the system of equations is to eliminate one of the variables. This can be done in the above system as follows:

$$3x + 2y = 4 \quad \text{Multiply each term in this equation by 3.} \quad 9x + 6y = 12$$

$$4x + 3y = 7 \quad \text{Multiply each term in this equation by -2.} \quad -8x - 6y = -14$$

At this point you can add the two equations and eliminate the variable y.

$$\begin{array}{r} 9x + 6y = 12 \\ -8x - 6y = -14 \\ \hline x = -2 \end{array}$$

Once you know that $x = -2$, substitute that value in either of the original equations to solve for y.

$$3x + 2y = 4$$

$$3(-2) + 2y = 4$$

$$-6 + 2y = 4$$

$$2y = 10$$

$$y = 5$$

Substitute -2 for x, and solve for y.

Simplify.

Add 6 to both sides.

Divide both sides by 2.

ANSWER: X = -2 and y = 5.

- 38)
- On the set of axes below, graph the following system of inequalities and state the coordinates of a point in the solution set.**

$$2x - y \geq 6$$

$$x > 2$$

The second inequality will be a non-solid vertical line where $x = 2$, and it will be shaded to the right, as we want points whose x-coordinate is greater than 2.

The first inequality is a bit trickier. Let's transpose it into the form $y = mx + b$.

$$2x - y \geq 6 \quad \text{Subtract } 2x \text{ from both sides.}$$

$$-y \geq -2x + 6 \quad \text{Multiply each term } -1.$$

$$y \leq 2x - 6 \quad \text{Inequality symbol changes direction when multiplying or dividing by a negative.}$$

The inequality you are asked to graph is therefore:

$$y \leq 2x - 6$$

You will need at least 3 sets of coordinates to graph this inequality. Here is how you can use your graphing calculator to obtain those points.

Your graph will be the same as the graph represented by the equation $y = 2x - 6$, but with shading downward to indicate that it is an inequality with a "less than" symbol. It's actually a "less than or equal," and that is why it will be a solid line rather than a broken line.

Enter the equation into the calculator using the Y= editor:

```

Plot1 Plot2 Plot3
Y1 2X-6
Y2 =
Y3 =
Y4 =
Y5 =
Y6 =
Y7 =

```

Now to obtain three x and corresponding y-coordinates, hit the **2nd** key followed by **GRAPH**. This will bring up the **TABLE** screen. You can use the up and down scroll keys to obtain different x and y values. Any three points will be good. I will use the three beginning with x = 2: **(2, -2), (3,0), (4,2)**

X	Y1	
0	-6	
1	-4	
2	-2	
3	0	
4	2	
X=-1		

The graph for the system of inequalities appears on the next page.

The red line is the first inequality $2x - y \geq 6$. Again, remember that to graph it you first transposed it into the form of $y = mx + b$. Also remember that it is a solid line and shaded beneath the line because in reality it contains the \leq symbol.

The second inequality of $x > 2$ is represented by the black vertical broken line with shading to the right.

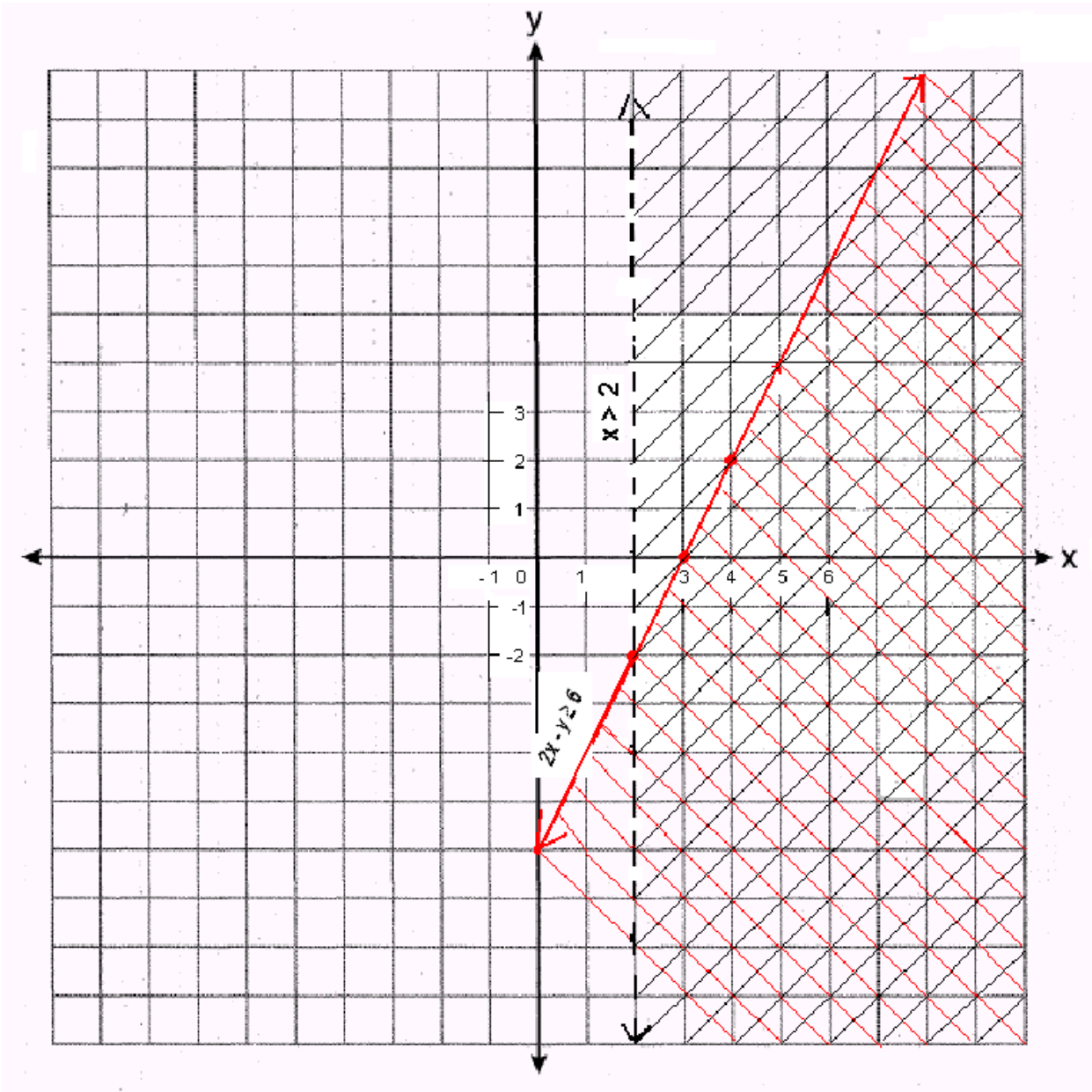
You are asked to state the coordinates of a point in the solution set

Any point within the grid where you see the crisscross of BOTH black AND red shading, is part of the solution set.

For example, the point (5,0) is one of the many points in the solution set.

What this means is that the point (5,0) will make both given inequalities true.

It lies on the graphs representing each of the inequalities.



- 39) *A restaurant sells kids' meals consisting of one main course, one side dish, and one drink, as shown in the table below.*

Kids' Meal Choices

Main Course	Side Dish	Drink
hamburger	French fries	milk
chicken nuggets	applesauce	juice
turkey sandwich		soda

Draw a tree diagram or list the sample space showing all possible kids' meals. How many different kids' meals can a person order?

Here is what a sample space looks like:

hamburger, French fries, milk
 hamburger, French fries, juice
 hamburger, French fries, soda
 hamburger, applesauce, milk
 hamburger, applesauce, juice
 hamburger, applesauce, soda

chicken nuggets, French fries, milk
 chicken nuggets, French fries, juice
 chicken nuggets, French fries, soda
 chicken nuggets, applesauce, milk
 chicken nuggets, applesauce, juice
 chicken nuggets, applesauce, soda

turkey sandwich, French fries, milk
 turkey sandwich, French fries, juice
 turkey sandwich, French fries, soda
 turkey sandwich, applesauce, milk
 turkey sandwich, applesauce, juice
 turkey sandwich, applesauce, soda

Jose does not drink juice. Determine the number of different kids' meals that do not include juice.

ANSWER: Simply count. **12** of the choices do not include juice.

Jose's sister will eat only chicken nuggets for her main course. Determine the number of different kids' meals that include chicken nuggets.

ANSWER: Six different meals will include chicken nuggets.