What is the difference between an exponential function and a linear function?

Essential Question Essential Question Essential Question Essential Question Essential Question Essential Question Essential Question

Week 5, Lesson 1

1. Warm Up
2. 1st Project turn in!
3. Drawing 3D Figures
4. ICA

Drawing 3D Figures

What is the difference between an exponential function and a linear function?

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Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up W

Warm Up: *DUE* Idea!

3rd quarter project tracker.xlsx

1 Use the quadratic function $y = -4(x-2)^2 + 5$ to identity the vertex, domain and range. Is the vertex a max or min?

2 Sketch the graph of $y = 4(2)^{x-2} + 5$ identify the inflection point and horizontal asymptote.

3 You buy a new house for $180,000. The value of the house decreases by about 20% annually. Write an exponential decay model for the value of the car. Use the model to estimate the value after 4 years.

4 Compare and contrast the two given functions

$y = x^2$ and $y = (x-2)+8$

MS 2 Week 5

1 Use the quadratic function $y = -4(x-2)^2 + 5$ to identity the vertex, domain and range. Is the vertex a max or min?

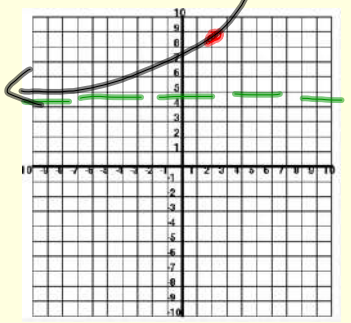
Circle one:
Minimum or
Maximum

Vertex: (2, 5)

Domain: All real #'s

Range: $y \leq 5$

2 Sketch the graph of $y = 4(2)^{x-2} + 5$ identify the inflection point and horizontal asymptote.



(2, 9)

3 You buy a new house for $180,000. The value of the house decreases by about 20% annually. Write an exponential decay model for the value of the car. Use the model to estimate the value after 4 years.

$y = ab^x$

a = starting = 180000

b = change = $(1-r) = (1-.20) = .80$

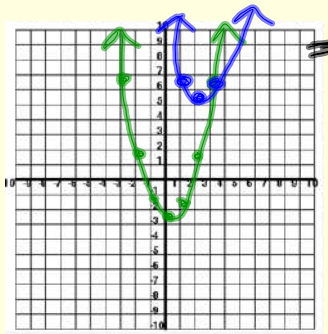
x = 4 years

$180{,}000(.8)^4$

The Value of the house after 4 years is $73,728

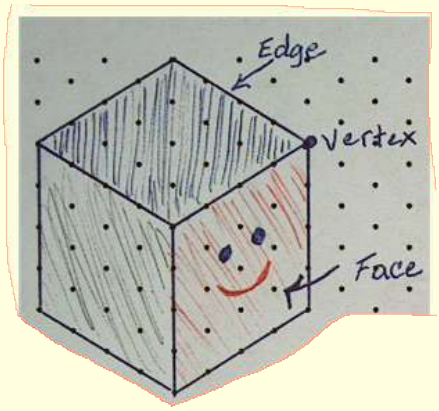
4 Compare and contrast the two given functions

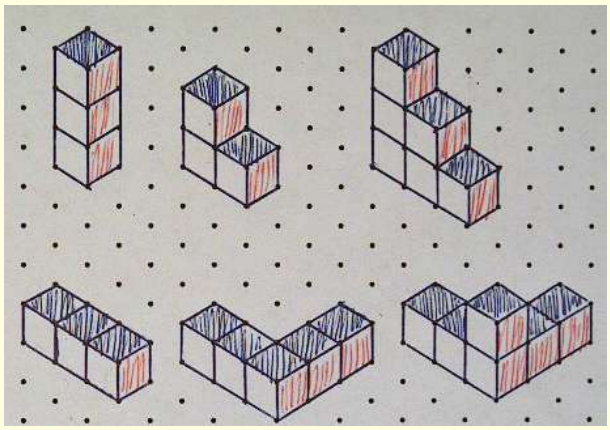
$y = x^2$ and $y = (x-2)^2+8$



The second graph moved up 8 units and to the right 2 units.

Drawing 3-D figures

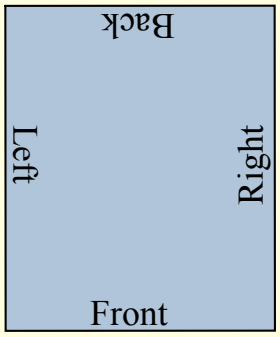




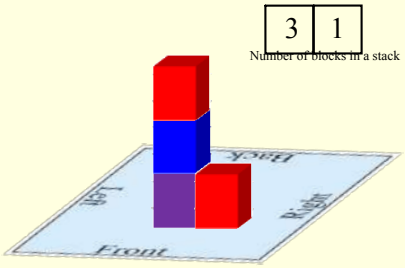
MS 2 Week 5

ICA: In Class Activity ICA: In Class Activity ICA: In Class Activity ICA: In Class Activity ICA: In Class Activity ICA: In Class Activity ICA: In Class Activity

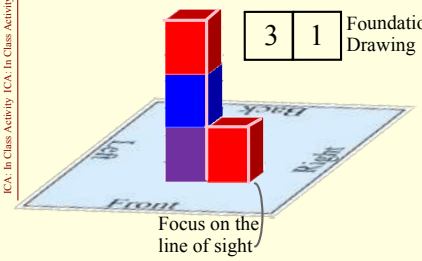
Step 1: Make a directional mat to place blocks on.

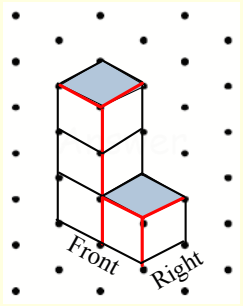


Step 2: Place the blocks on your directional mat.



Step 3: Use the isometric dot paper to draw the figure.

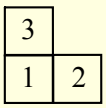


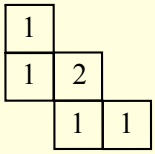


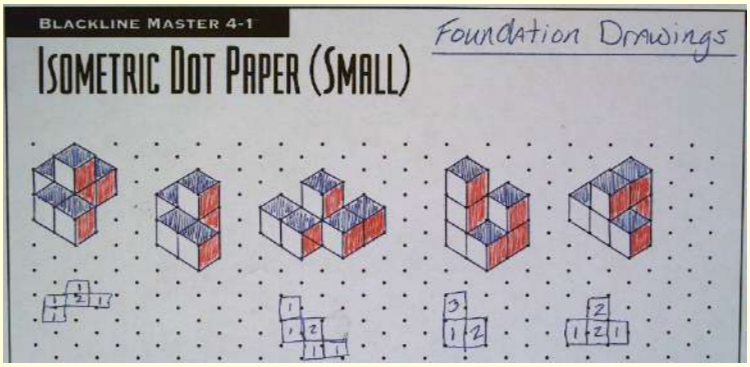
Step 4: Use the isometric dot paper to draw the following figures, from TWO Different perspectives.

Front-Right
Back-Left
Left-Front
Right-Back

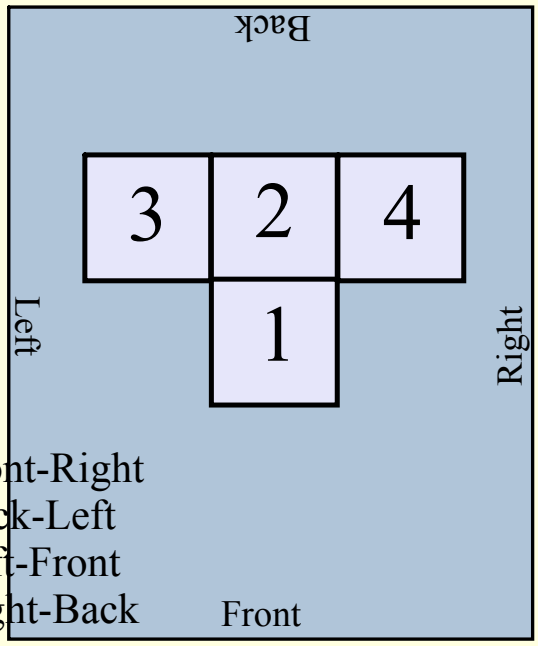
Foundation Drawings



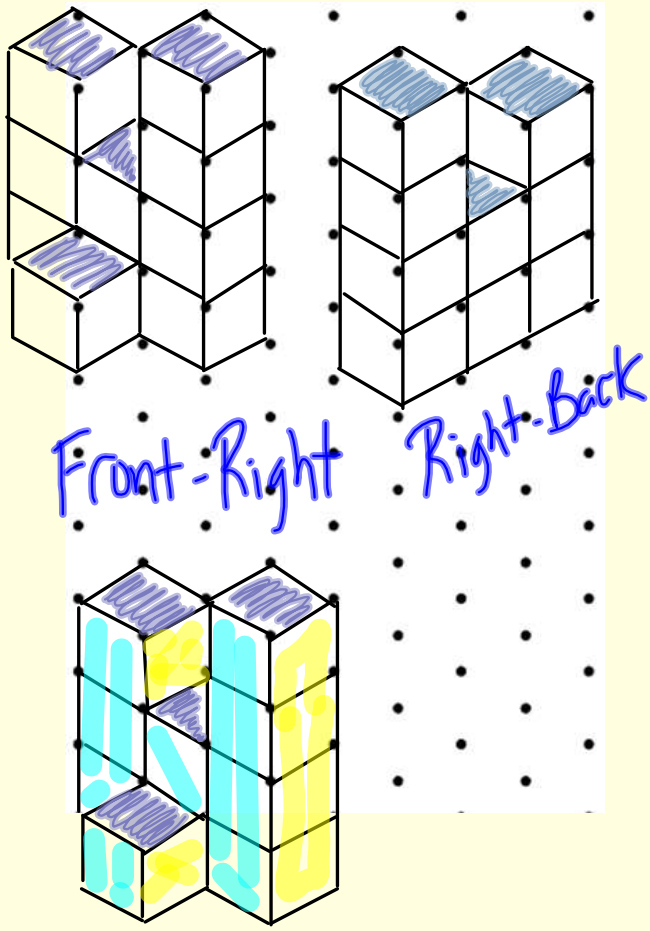




Use the isometric dot paper to draw the following figures, from ALL FOUR Different perspectives.



Front-Right
Back-Left
Left-Front
Right-Back

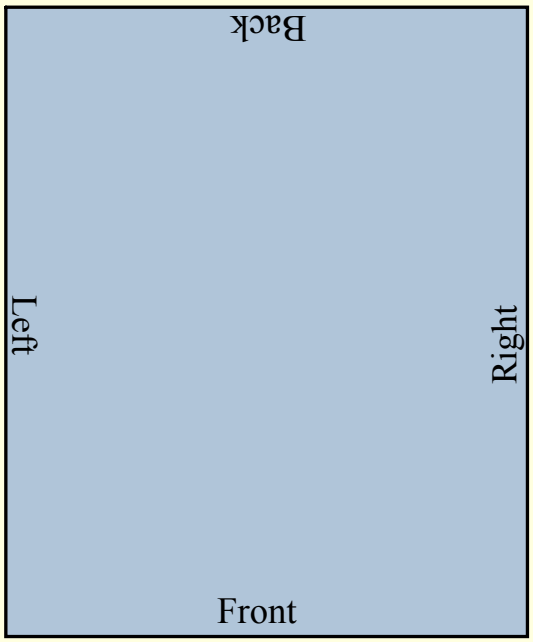


Make your own design using 10 blocks

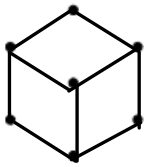
Represent your design using a foundational drawing

Use the isometric dot paper to draw the following figures, from ALL FOUR Different perspectives.

Front-Right
Back-Left
Left-Front
Right-Back



MS 2 Week 5



Closure Closure Closure Closure Closure Closure Closure Closure Closure Closure Closure Closure Closure Closure Closure Closure Closure Closure Closure

How will the ability to draw a three dimensional object help you in Math Studies?

Right Side...

Left Side...

Quick write:

How is your project coming?

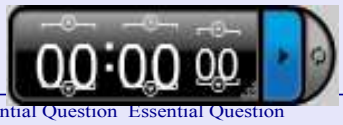
MS 2 Week 5

Tutoring/ Homework:

~*~*~STUDY FOR YOUR TEST~*~*~

Tutoring Work/ Homework Tutoring Work/ Homework Tutoring Work/ Homework Tutoring Work/ Homework Tutoring Work/ Homework Tutoring Work/ Homework Tutoring Work/ Homework

Am I ready for my test? What do I need to do to make sure?



Essential Question Essential Question Essential Question Essential Question Essential Question Essential Question Essential Question

Week 5, Lesson 2

1. Warm up
2. Test Review
3. IB PROJECT
4. Study for TEST

Test Review

Am I ready for my test? What do I need to do to make sure?

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Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up

Quick Write:

1) Up to this point what have you done to study and prepare for your test?

2) This test has 5 standards on it. What are you most worried about and least worried about.

3) What are the 5 standards on the test?

MS 2 Week 5

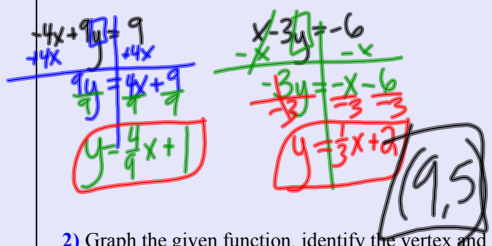
Test Review

Standard 6.2

1) What is the solution to the system?

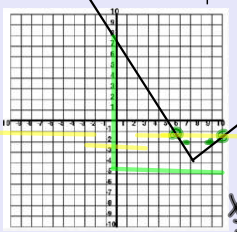
$-4x + 9y = 9$

$x - 3y = -6$



2) Graph the given function, identify the vertex and state the domain and range.

$$f(x) = |x - 8| - 2$$



vertex (8, -2)

Domain All real numbers

Range $y \geq -2$

x	6	7	8	9	10
y	0	-1	-2	-1	0

Standard 6.3

3) Use the quadratic function provided to identify the following information.

$$y = -3(x-2)^2+3$$

Circle one:
Minimum or Maximum

Vertex: (2, 3)

Domain: all real numbers

Range $y \leq 3$

4) Compare and contrast the two given functions $y=x^2$ and $y= (x+3)^2-9$

The second graph moved down 9 Units and left 3 units

Standard 6.4

5) Sketch the graph of the given function, identify the inflection point and horizontal asymptote.

$$y = 3\,(3)^{x+4}-9$$

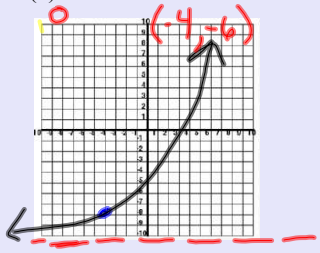
Circle one:
Growth or Decay

Point of inflection:

(-4, -6)

Horizontal Asymptote:

$y = -9$



6) You buy a new car for $25,000. The value of the car decreases by about 5% annually. Write an exponential decay model for the value of the car. Use the model to estimate the value after 4 years.

ab^x

a = Starting = 25,000

b = Change = (1 - .05) = .95

x = Time = 4

$25000(.95)^4$

After 4 years the value of the car is $20362.66

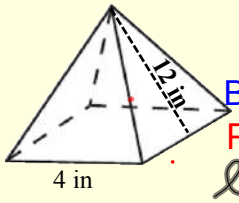
Summary:

$$\frac{-3x+2}{2-3x}$$

chittenden@phoenixunion.org

Standard 5.5a

7) The pyramid shown has a square base and faces that are isosceles triangles. What is the surface area of the pyramid?



$SA = B + \frac{1}{2}Pl$

B= Area of the Base. $= 16$

P=Perimeter of the Base $= 16$

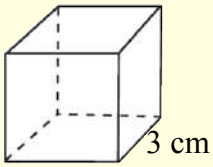
$l = 12$

$16 + \frac{1}{2}(16)(12)$ $\quad 112\,in^2$

8) What is the surface area of the sphere with a diameter of 8cm?

$SA = 4r^2\pi$

9) What is the surface area of the cube shown?



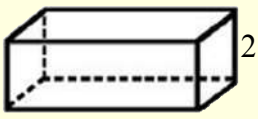
$SA = 2B + Ph$

Standard 5.5b

10) What is the volume of the cone with a radius of 8 cm and a height of 4 cm?

11) A cone, with a height of 12 cm, and a radius of 4 cm, is filled with water. The water is poured from the cone into a right rectangular prism, 4 cm by 10 cm by 17 cm, sitting on its smallest face. What is the height, in centimeters, of the water level?

12) What is the volume of the shown prism? The area of the base is 24 inches.



Study Guide Answers

(6.2) Linear

1) What is the solution for the system?

$$-7x+y=-19$$
$$-2x+3y=-19$$

$-7x+y=-19$, $+7x$ $+7x$, $y=7x-19$

$-2x+3y=-19$, $+2x$ $+2x$, $\frac{3y}{3}=\frac{2x-19}{3}$, $y=\left(\frac{2}{3}\right)x-\left(\frac{19}{3}\right)$

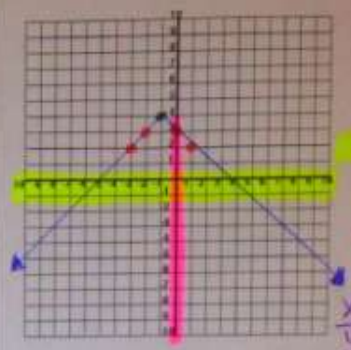
Plug into calc

(G-Solv) → (Isct) → (2, -5)

3 points

2) Graph the given function, identify the vertex and state the domain and range.

$$f(x)=-|x+1|+4$$



Vertex: (-1, 4)

Domain: All real numbers

Range: $y \le 4$

x	-3	-2	-1	0	1
y	2	3	4	3	2

7 points

(6.3) Quadratics

3) Use the quadratic function provided to identity the following information.

$$y=2(x+3)^2-3$$ (Plug into Calc)

Circle one:

Minimum or Maximum

Vertex: (-3, -3) (G-Solv) → (Min)

Domain: All real numbers

Range: $y \ge -3$

6 points

4) Compare and contrast the two given functions

$y=x^2$ and $y=(x+5)^2+2$?

(Plug both in to calc)

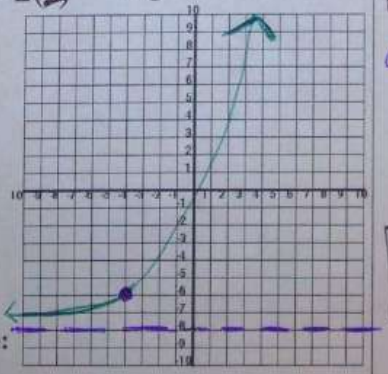
Answer: The second graph moved to the left 5 units and up 2 units

6 points

Exponential (6.4)

5) Sketch the graph of the given function; identify the inflection point and horizontal asymptote.

$$y=2(2)^{x+4}-8$$



Circle one:

Growth or Decay

Point of inflection:

(-4, -6)

Horizontal Asymptote:

$y=-8$

6 points

6) You buy a new car for $30,000. The value of the car decreases by about 10% annually. Write an exponential decay model for the value of the car. Use the model to estimate the value after 6 years.

$a=30{,}000$ $b=(.90)$ $x=6$

$30{,}000(.9)^6$

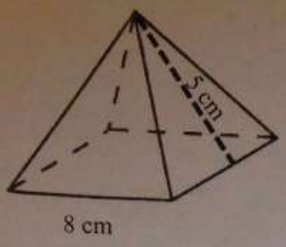
The value of the car after 6 years would be about $15,943.23.

6 points

Study Guide Answers

3D Shapes Surface Area(5.5a)

7) The pyramid shown has a square base and faces that are isosceles triangles. What is the surface area of the pyramid?



$SA = B + \frac{1}{2}Pl$

B = area of the base $8 \cdot 8 = 64$

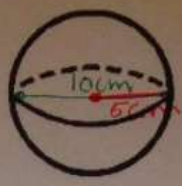
P = Perimeter of the base $8+8+8+8 = 32$

l = Slant height = 5

$SA = 64 + \frac{1}{2}(32)(5)$

144 cm^2

8) What is the surface area of the sphere with a diameter of 10 cm?



$SA = 4\pi r^2$

r = radius which is $\frac{1}{2}$ of the diameter = 5cm

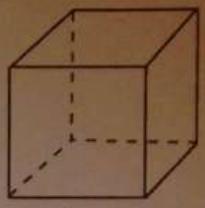
$\pi = 3$

$SA = 4(3)(5)^2$

300 cm^2

9) What is the surface area of the cube shown?

Cube = All sides the sam



$SA = 2B + Ph$

B = area of the base $6 \cdot 6 =$

P = perimeter of the base $6+6+6+6 = 24$

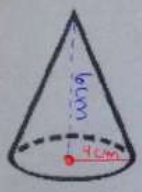
h = height = 6

$SA = 2(36) + 24(6)$

216 cm^2

3D Shapes Volume (5.5b)

10) What is the volume of the cone with a radius of 4 cm and a height of 6 cm?



$V = \frac{1}{3}\pi r^2 h$

$\pi = 3$

r = radius = 4

h = height = 6

$V = \frac{1}{3}(3)(4)^2(6)$

96 cm^3

11) A cone, with a height of 10 cm, and a radius of 2 cm, is filled with water. The water is poured from the cone into a right rectangular prism, 4 cm by 6 cm by 11 cm, sitting on its smallest face. What is the height, in centimeters, of the water level?

$V = \frac{1}{3}\pi r^2 h$

$\pi = 3$

r = radius = 2

h = height = 10

$V = \frac{1}{3}(3)(2)^2(10)$

$\frac{40}{24} = \frac{24h}{24}$

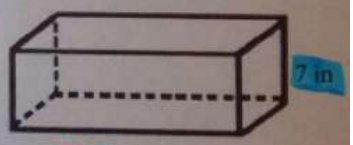
B = Area of Base $4 \cdot 6 = 24$

h = height = what we want to know

$V = 24(h)$

The water level of the Prism will be $1\frac{2}{3}$ cm.

12) What is the volume of the shown prism? The area of the base is 48 inches.



$V = Bh$

$48(7)$

336 cm^3

Right Side...

Write a summary that answers the essential question.

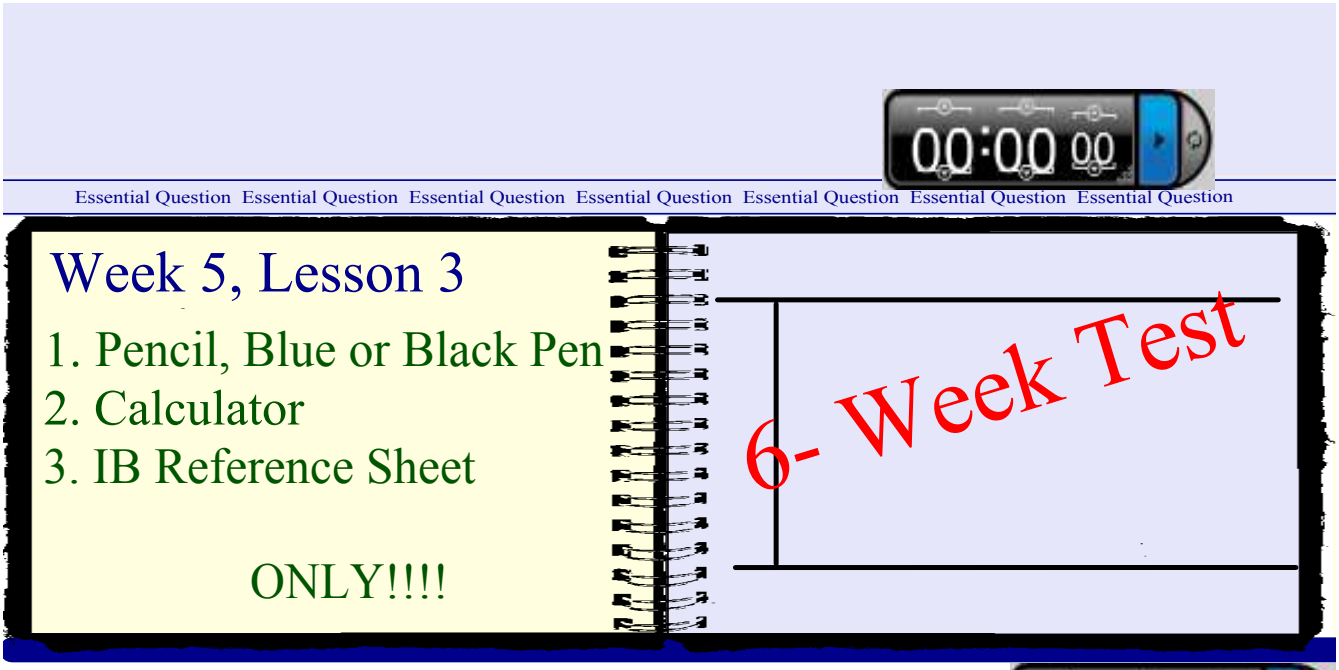
Left Side...

Quick write:

How is your project coming?

Tutoring/ Homework:

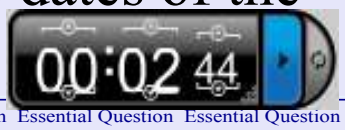
Make sure your
Study Guide
is completed



Warm up:

Hypothesis DUE

Am I following along with the due dates of the project?



Essential Question Essential Question Essential Question Essential Question Essential Question Essential Question Essential Question

Week 5, Lesson 4

1. Vocabulary Quiz
2. Project Plan Turn in
3. Activity
4. Work on your Project

Project Plan Turn In

Am I following along with the due dates of the project?

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Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up

Warm-up: Answer the following questions.

Vocabulary Quiz

UNIT 5A VOCABULARY QUIZ.docx

Project Plan Turn in

Peer edit 1.docx

Standard

Your task:

Switch your paper with someone else.

Peer edit them!!

Forget or not due it?

Heres your assignment...have fun!

Worksheet for no project people.pdf

Closure Closure Closure Closure Closure Closure Closure Closure Closure Closure Closure Closure Closure Closure Closure Closure Closure Closure Closure

Right Side...

Write a summary that answers the essential question.

Left Side...

Quick write:

How is your project coming?

Attachments

3rd quarter project tracker.xlsx

Peer edit 1.docx

UNIT 5A VOCABULARY QUIZ.docx

Worksheet for no project people.pdf