Name _____ Period _____

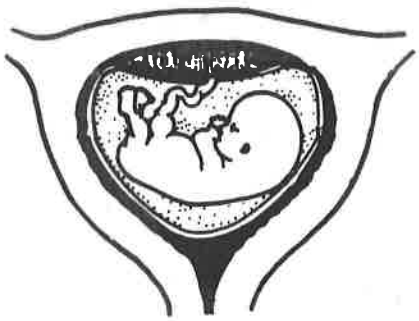
Due date _____

EMBRYONIC DEVELOPMENT

The gestation period of a human baby, from the first fertilized egg to the mature full term baby usually takes 40 weeks, or 9 months. During this gestation period, the baby develops specialized tissues & organs.

In the first 30 days after fertilization, the baby's stomach, brain, and heart form. The liver and eyes also begin to appear. By the end of the second month (8 weeks), all the baby's organ systems have begun to develop. Arms, legs, fingers, toes, mouth, and nose also appear. During the first 8 weeks the baby is called an embryo; after 8 weeks the baby is called a fetus.

By the fourth month, the baby begins to kick, bend, and turn within the uterus. The mother can usually feel these movements. The baby now has hair and can be determined to be a boy or a girl in an ultrasound. Growth continues for nine months. Toward the last month, the baby begins to form body fat below the skin. When the child is ready to be born, a surge of hormones causes the mother to go into labor and give birth.



In this laboratory activity, you will evaluate the changes in mass and body size during the gestation period. You will also examine the stages of embryonic development.

MATERIALS: Metric ruler
Calculator
Crayons (yellow, green, brown, red, blue, pink, orange, purple)

PART 1: MATCHING – Match each of the following terms with their definitions.

_____ A. Fertilization	1. An unborn baby more than 8 weeks old
_____ B. Development	2. The time of pregnancy
_____ C. Embryo	3. The fusion of gametes (eggs & sperm)
_____ D. Fetus	4. An unborn baby less than 8 weeks old
_____ E. Gestation	5. Growth & change in the baby over time

1. Look at Figure 1 below. It shows a developing baby at 33% of it's natural size.

2. Follow the steps below to measure the total length of each stage. Measure to the closest ½ inch and record your data in the data table.

A. Measure the "body length" from the rump to the top of the head
B. Measure the "thigh length" from the rump to the knee
C. Measure the "leg length" from the knee to the foot
D. Add all 3 measurements together and record the "Total Length."
E. Multiply this total by 3 to get the actual size of the baby

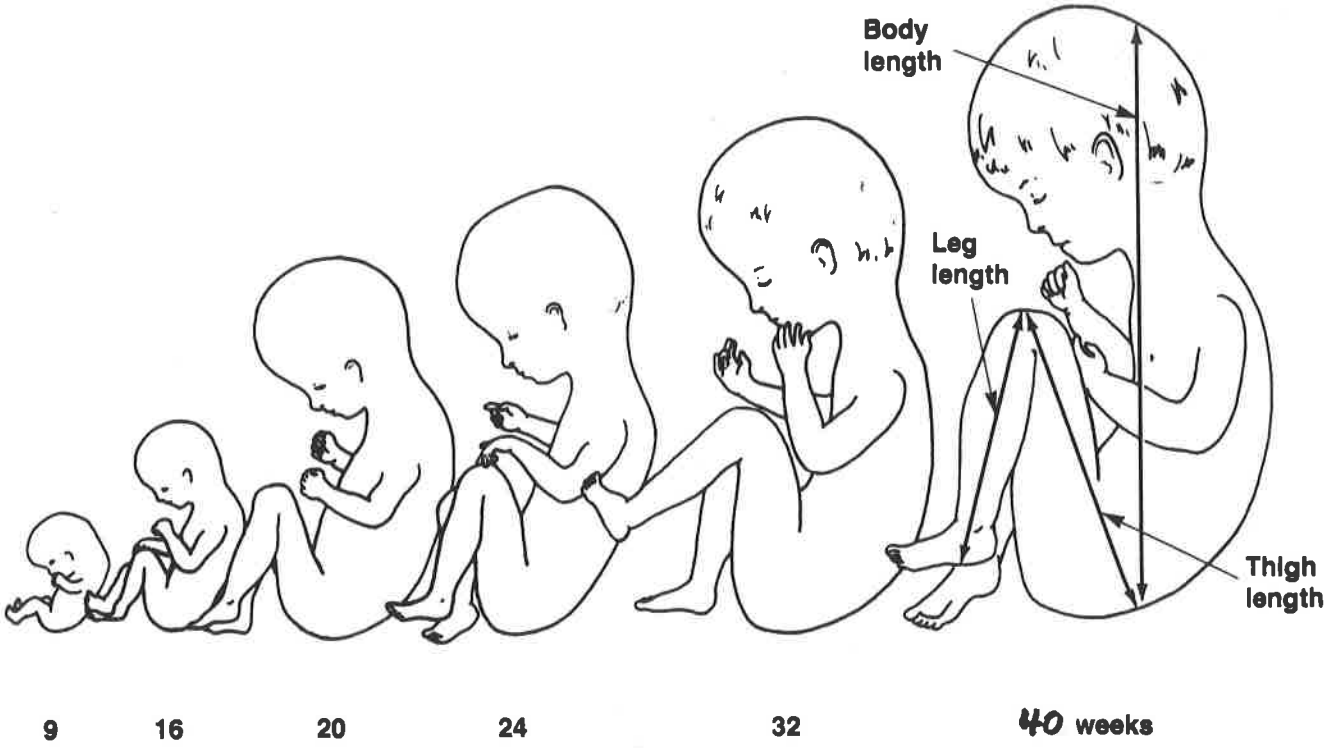


FIGURE 1. Stages in the development of a human fetus

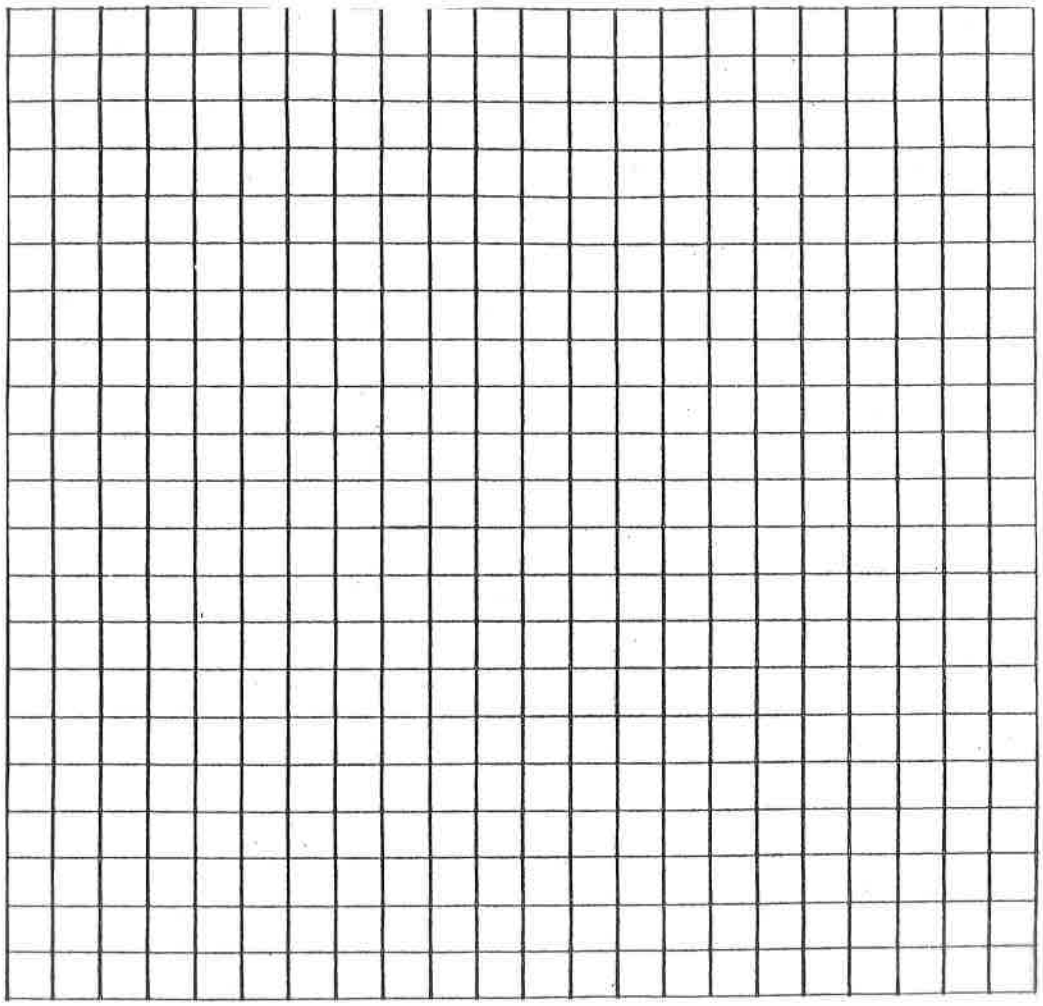
Table 1. Lengths of a Developing Fetus

Age of fetus in weeks	Body length	+	Thigh length	+	Leg length	=	Total length	× 3	=	Actual length (in)
2	———		———		———		———			.1
9										
16										
20										
24										
32										
40										

Make a line graph of the growth of the baby. Use the data from the "Actual Length" column.

BE SURE TO:
- Give your graph a title
- Label equal increments on the X axis
- Label equal increments on the Y axis

SIZE (INCHES)



TIME (WEEKS)

ANALYSIS OF GRAPH:

1. How long is the baby at 40 weeks when it is full term? _____

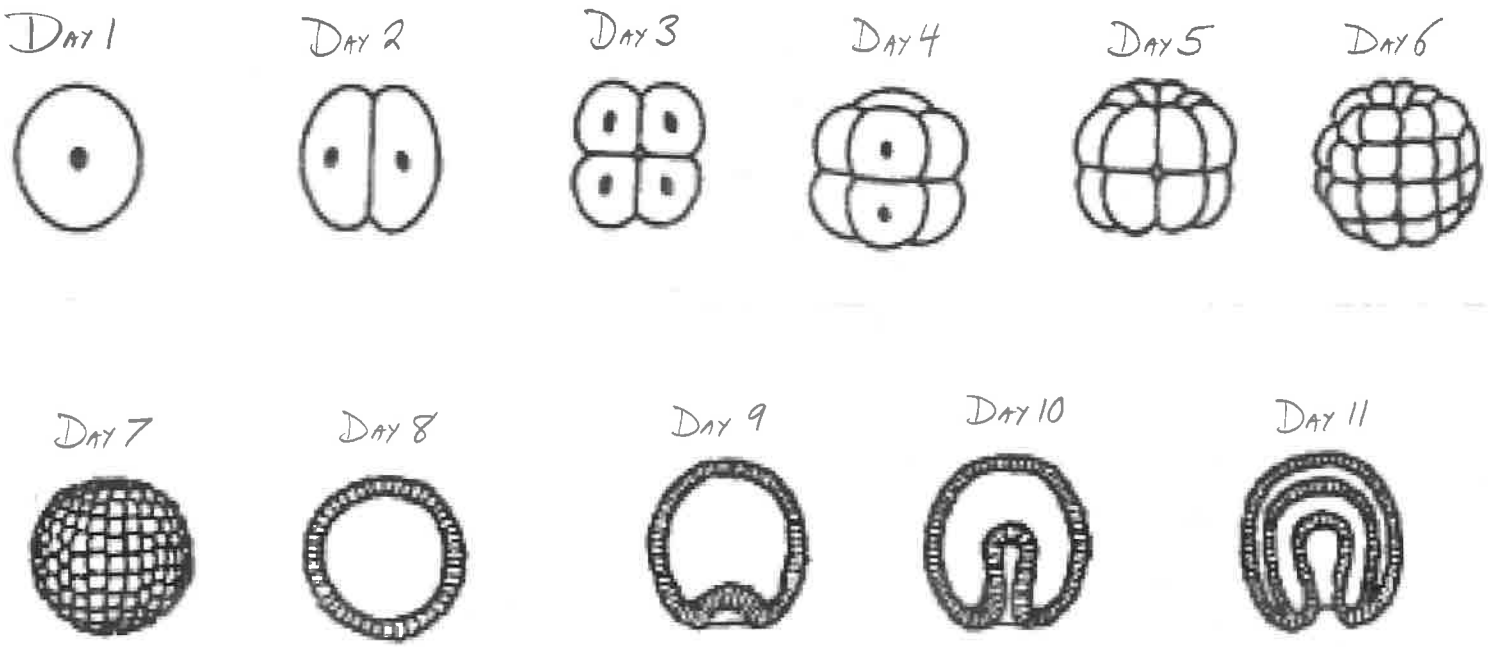
_____ 2. At which week does the baby reach about half of its full length?

A. 5 B. 18 C. 25 D. 40

3. If a premature baby is born with a length of 15 inches, how old is it in weeks? _____

4. How long were you when you were born? (If not sure, put 20 inches) _____

EMBRYONIC DEVELOPMENT



COLORING

DIRECTIONS: Color each structure on the diagram according to the following key:

1st Mitosis = YELLOW

2nd Mitosis = GREEN

Blastula = BROWN

Embryo = RED
(8 weeks old)

Fetus = BLUE
(12 weeks old)

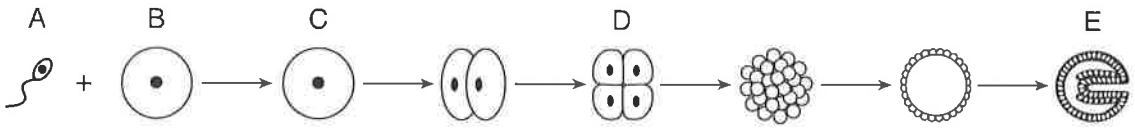
Full Term = PINK

Gastrula = ORANGE

Zygote = PURPLE

PRACTICE QUESTIONS

Base your answers to questions 1 and 2 on the diagram below and on your knowledge of biology. The diagram represents events that occur during embryonic development. Letters *A* through *E* represent structures.



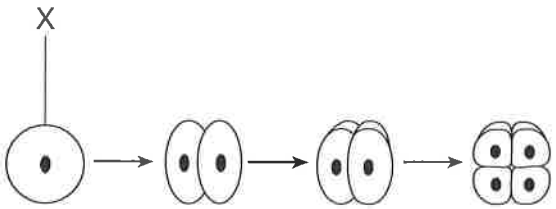
1. Between which two letters does mitosis occur?

(1) *A* and *B*
(2) *B* and *C*
(3) *A* and *C*
(4) *C* and *D*

2. Between which two letters does differentiation occur?

(1) *A* and *B*
(2) *B* and *C*
(3) *C* and *D*
(4) *D* and *E*

The diagram below represents some stages that occur in the formation of an embryo.



3. Which statement best describes stage *X*?

(1) Stage *X* is a zygote and contains half the number of chromosomes as the body cells of the parents.
(2) Stage *X* is formed by the process of meiosis and is known as a gamete.
(3) Stage *X* is a zygote and is formed as a result of the process of fertilization.
(4) Stage *X* is formed by mitosis and is known as an egg cell.

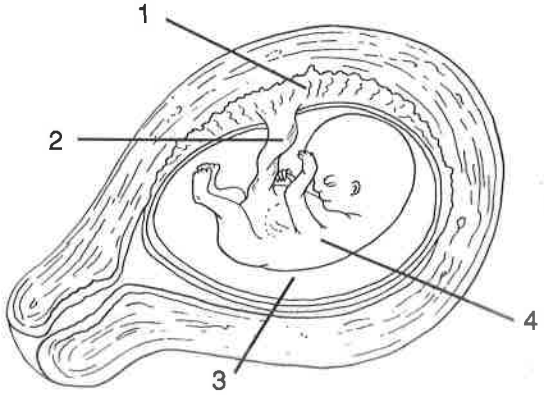
4. Place the numbers from the diagram on the right next to the correct statements below.

a. ____ The *umbilical cord* connects the young to the placenta.

b. ____ The young is protected by a *liquid-filled sac.*

c. ____ Wastes are carried away by the *placenta.*

d. ____ The *fetus* grows in the uterus.

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I THINK I'LL NAME HER SARAH.
I'M SORRY, BUT THAT NAME IS ALREADY TAKEN. HOWEVER, YOU CAN STILL HAVE SARAH4343 OR SARAH_12.
T. ANDREWS