

# DMS 333 Final Review

Michelle Wilson Ed. D, RDMS RDCS, FSDMS

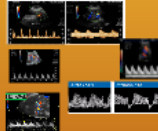
Neural Tube and the Face  
Normal Anatomy



Accessory Parts



Dobbler Ideas



What do I need to know?

TOPICS



Topic	Weight
Cardiac	10%
Skeletal System	10%
Neural Tube	10%
Face	10%
Accessory Parts	10%
Dobbler Ideas	10%
First Trimester	10%

Cardiac




Cardiac



Anatomy



Skeletal System  
Know the Normals



First Trimester



- Think before you ask
- What are they really asking
- Recheck your answers
- Don't rush your answers
- Draw them
- Find Nicks & Skips
- Answer how you did on a similar test
- Answer questions in a strategic order:
  - Easy questions first to build confidence
  - Then those with the most points value
  - Evaluate whether you're correct answers

# DMS 333 Final Review

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**TOPICS**

Conception and First Trimester

Normal Anatomy

Child and Growth

Multiple Gestations

Cardiac Concepts

Doppler in Obstetrics

Third Trimester and Growth

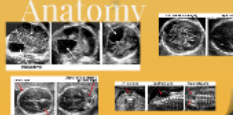
Placenta

Uterus

CV - Doppler

Neural Tube and the Face

Normal Anatomy

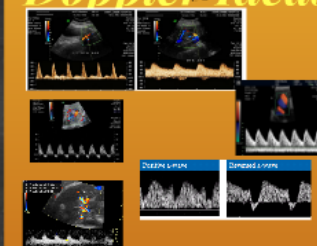


Ancillary Parts

Placenta

- Location
- Size
- Shape
- Color
- Texture
- Internal Structure

Doppler Ideas



What do I need to know?

Multiple Gestations



Cardiac



Anatomy

- Neural Tube
- Face
- Thoracic Cavity
- Abdominal
- Genital
- Uterus
- Placenta
- Amnion

Skeletal System

Know the Normals

1 2 3 4 5

First Trimester

What Does It Mean?



- Think Before You Look
- What are they really asking
- Recheck your answers
- Go with what you know
- Chew Gum
- Good Nights Sleep
- Analyze how you did on a similar test
- Answer questions in a strategic order:
  - Easy questions first to build confidence.
  - Then those with the most point value.
  - Eliminate obvious incorrect answers.

*What do I need to know?*



*First*

Increased Nuchal Translucency  
increase  
Wha

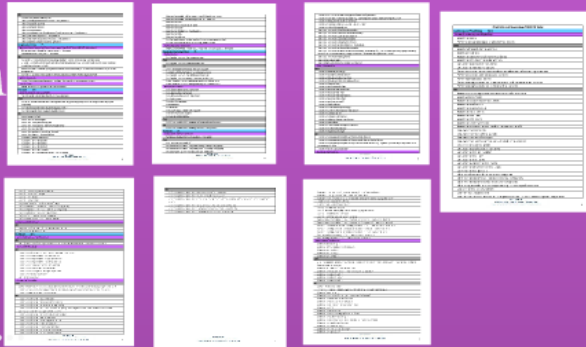
# TOPICS

Conception and  
First Trimester

Normal Anatomy

Abdomen, Pelvis, and Thoracic Cavity

Fluid and Growth



Multiple Gestations

Ancillary Parts.....

Cardiac  
Concepts

Doppler in Obstetrics







# Conception and First Trimester

# Cardiac Concepts

# Doppler in Obstetri



# Multiple Gestations

Ancillary Parts.....

# Conception and First Trimester

## Abdomen, Pelvis, and Thoracic Cavity

# Fluid and Growth

<b>OB</b>	Encounter a placental disruption
	Identify a marginal cord insertion into the placenta
	Identify a placenta previa
	Identify a placental mass
	Identify a vasa previa
	Identify a velamentous (transumbilical) cord insertion into the placenta
	Identify an accessory lobe of the placenta
	Identify an eccentric cord insertion into the placenta
	Identify placenta accreta, increta, percreta
<b>Integration of Data</b>	76
	Incorporate outside data (Clinical assessment, Health & Physical (H&P), Lab values)
	Obtain pertinent clinical history as a part of the exam
	Review lab results as a part of the exam
<b>OB</b>	Use the Doppler
	Use the results of maternal serum screening markers to assist in assessing fetal anatomy
	Attempt to correlate HCG levels with abnormal pregnancies (e.g., ectopic, hydatidiform mole, molar trophoblastic disease, chori)
	Take the exam to evaluate pregnancies where a maternal and/or fetal condition indicates a potential complication
	Use the 1st or 3rd trimester reference comparison when evaluating HCG levels
<b>Advocacy/Referrals</b>	
	Inform the supervising physician of findings that may be of an emergent nature
<b>Special studies</b>	
	Check the results of a previous ultrasound exam
<b>Protocols</b>	156
<b>Clinical Standards and Guidelines</b>	
	Perform quality assurance checks on the equipment
<b>OB</b>	
	Use both transabdominal and transvaginal scans in gynecological patients with a grossly equal frequency
	Use transabdominal scans in gynecologic patients
	Use transvaginal scans in gynecological patients
<b>OB</b>	
	Assess amniotic fluid
	Assess the ossterna magna
	Assess the fetal spine in long axis
	Assess the fetal spine in transverse/axial views
	Assess the nose and lips
	Assess the number of ventricles in the cord
	Assess the shape of the cerebellum
	Document placental location
	Document the fetal bladder
	Document the fetal kidneys
	Document the fetal number
	Document the fetal stomach
	Document the four-chamber view of the fetal heart

	Measure the
	Measure the
	Measure the
	Measure the
	Measure the
	Measure the
	Measure the
	Use the uterine
	Use the uterine
	Review when
<b>OB</b>	
	Use the Doppler
<b>OB</b>	
	Assess the ma
	Document ma
	Use the Doppler
	Use Doppler
	Use Doppler
	Use the uterine
<b>OB</b>	
	Use a cervic
	Use a trans
	Use the color
	Use color Dop
	Use Harmoni
	Use M-mode
	Use the uter
	Use the uter
	Use spatial c
<b>OB</b>	
	Use 2-D or so
<b>OB</b>	
	Use 2-D or so
<b>OB</b>	
	Participate in
<b>OB</b>	
	Assist in docu
	Perform an a
	Perform an a
	Perform exam




# Normal Anatomy

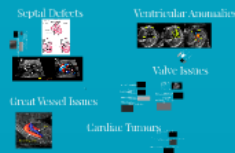






# Cardiac

Embryology  
Circulation   
Normal Anatomy



# Two Heart Tubes

SINUS VENOSUS

PRIMITIVE ATRIUM

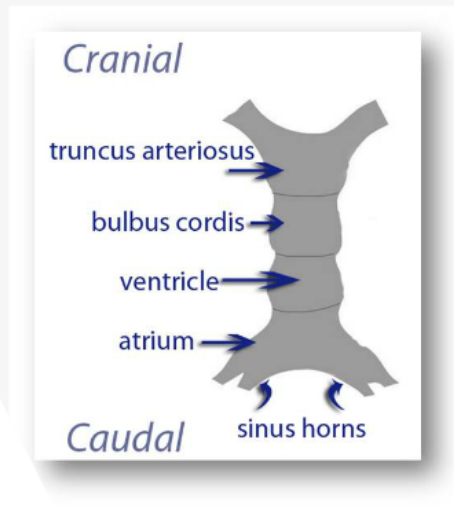
PRIMITIVE VENTRICLE

BULBUS CORDIS


TRUNCUS ARTERIOSUS

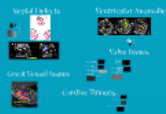
Twists to the Right

Corrected TGA of twists to the left



# Cardiac

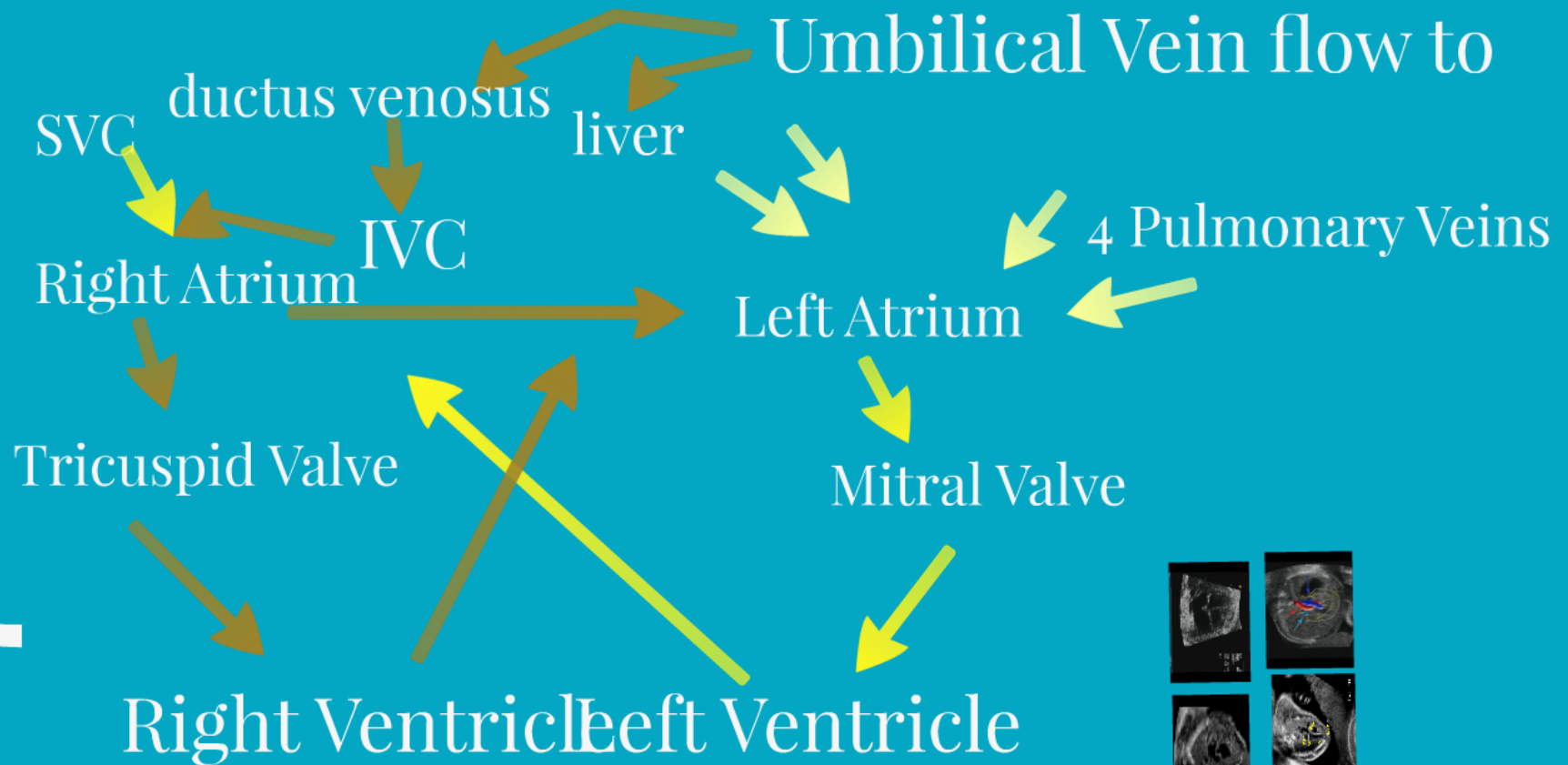
Embryology  
Circulation   
Normal Anatomy





Placenta—two umbilical arteries flow towards placenta

One umbilical vein carries oxygenated blood, to fetus

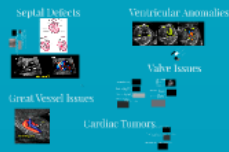


# Cardiac

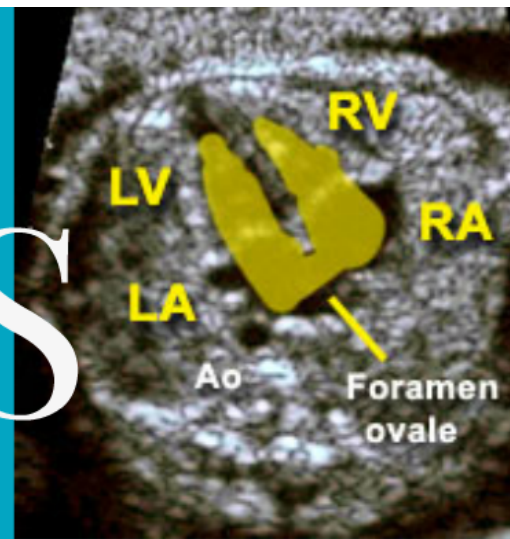
Embryology

Circulation 

Normal Anatomy



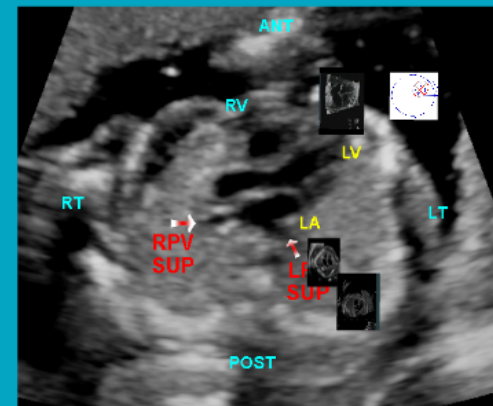
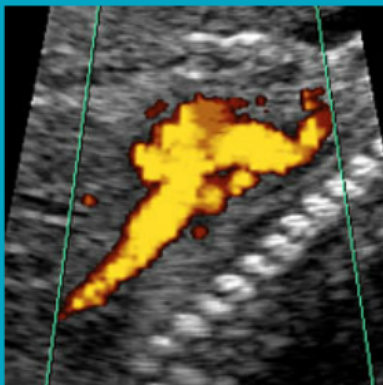
4 CHAMBERS

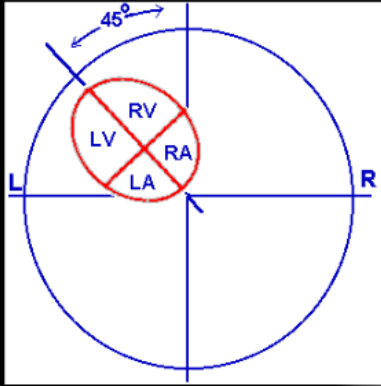


4 VALVES



4 VESSELS

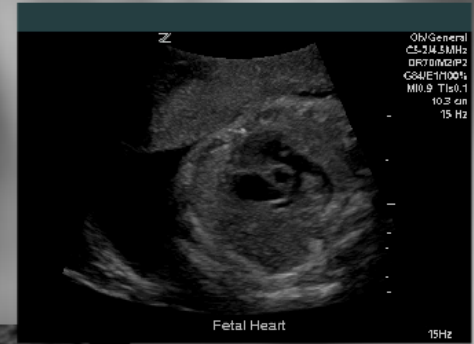




LT



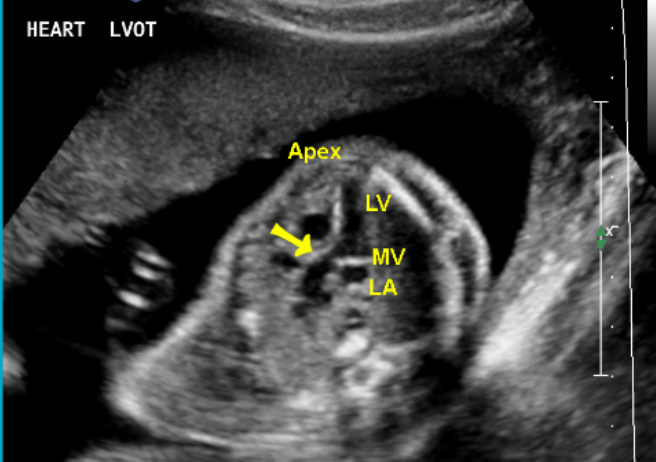
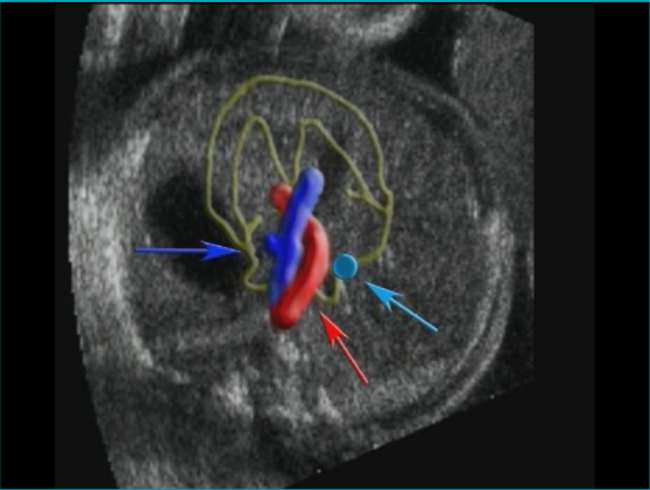
LV



LA




LEFT SUP



# *Cardiac*

## Cardiac

Embryology  
Circulation   
Normal Anatomy





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Normal Anatomy

Cardiac Concepts

Doppler in Obstetrics

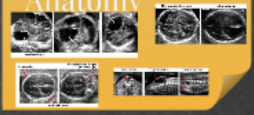
Third Trimester and Fourth Trimester

Normal Anatomy

Normal Anatomy

Neural Tube and the Face

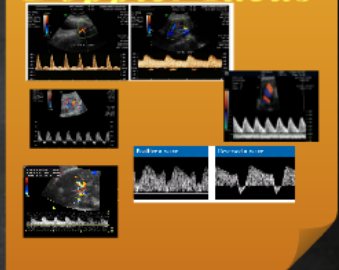
Normal Anatomy



Ancillary Parts

- Head
- Neck
- Thorax
- Abdomen
- Genitalia
- Limbs
- Placenta
- Cord
- Amnion
- Decidua
- Uterus
- Vagina
- Cervix
- Perineum
- Rectum
- Sigmoid Colon
- Bladder
- Uterus
- Vagina
- Cervix
- Perineum
- Rectum
- Sigmoid Colon
- Bladder

Doppler Ideas



What do I need to know?

Multiple Gestations



Cardiac



Anatomy

- Neural Tube
- Face
- Thorax
- Abdomen
- Genitalia
- Limbs
- Placenta
- Cord
- Amnion
- Decidua
- Uterus
- Vagina
- Cervix
- Perineum
- Rectum
- Sigmoid Colon
- Bladder

Skeletal System

Know the Normals

1 2 3 4 5

First Trimester

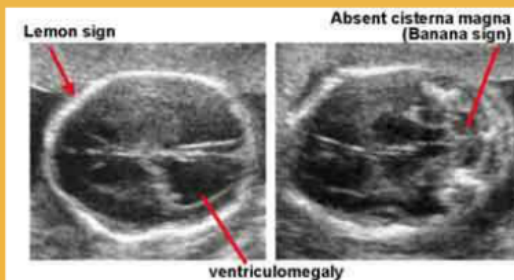
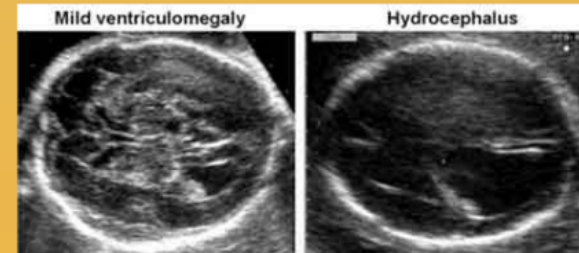
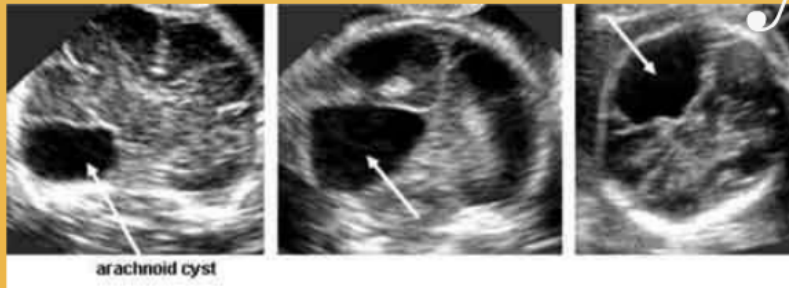
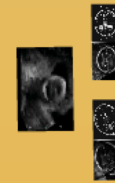
What Does It Mean?



- Think Before You Look
- What are they really asking
- Recheck your answers
- Go with what you know
- Chew Gum
- Good Nights Sleep
- Analyze how you did on a similar test
- Answer questions in a strategic order:
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# Neural Tube and the Face

## Normal Anatomy



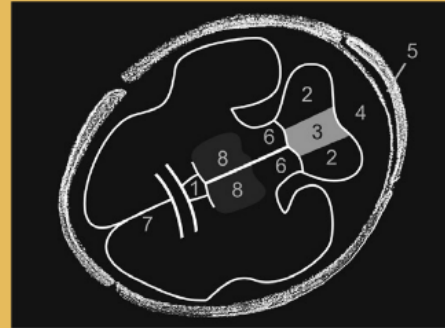
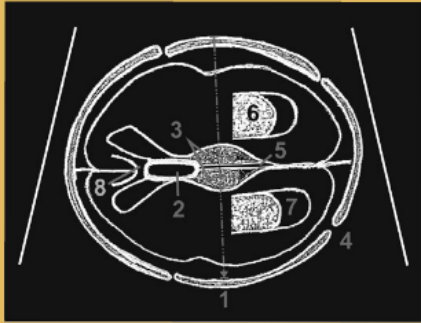


**Calvarium**—oval shaped, smooth, echogenic

**Midline Structures**—Thalami, Cavum Septum Pelucidum, Third Ventricle, Falx

**Ventricular System**—frontal horns, body, atrium occipital horn, fourth and third ventricle, foramen of Monroe, sylvian fissure

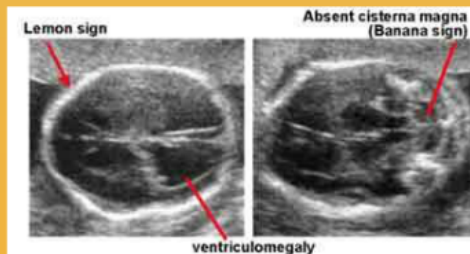
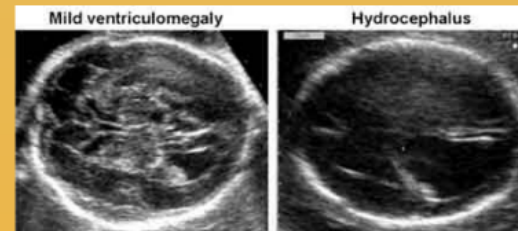
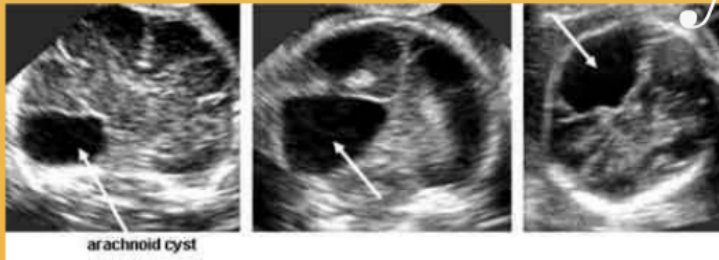
**Hindbrain**—cerebellum, vermix, cisterna magnum, nuchal thickness




# Neural Tube and the Face

## Normal

## Anatomy





Hypotelorism/Hypertelorism  
Micrognathia  
Clefting (Lip, Face, Palate)  
Coronal Plane

<b>Alobar</b>	Most severe, single vent. Fused thalami
<b>Holoprosencephaly</b>	Partial division of forebrain and thalami
<b>Lobar</b>	Least severe. Absent cavum septum pellucidum. Nml. vents and thalami
<b>Hydrancephaly</b>	Enlargement of cerebral hemispheres. Due to carotid occlusion or insult
<b>Hydrocephaly</b>	Enlarged ventricular system. Head larger than dates.
<b>Ventriculomegaly</b>	Posterior horn => 10mm Head normal in size
<b>Aqueductal Stenosis</b>	Obstruction, atresia, or stenosis of aqueduct of Sylvius. (connects 3rd and 4th vents).
<b>Choroid Plexus Cysts</b>	Simple cysts located in choroid plexus
<b>Porencephalic Cyst</b>	in cerebral hemisphere. Liquefaction of brain tissue
<b>Encephalocele</b>	Bony defect in the vertebral arch. Sac composed of dura mater. Typically occipital meningocele
<b>Anencephaly</b>	Skull ends above the orbits
<b>Exencephaly</b>	Brain tissue located outside the skull
<b>Acranial</b>	Facial cranial bones not formed
<b>Agenesis of Corpus Callosum</b>	Identified in midline coronal and sag views. Bundle of nerve fibers connecting two cerebral hemispheres
<b>Microcephaly</b>	Small brain within small head.
<b>Dandy-Walker Malformation</b>	Fossa Cyst. Hypoplastic or absent cerebellar vermis. Splaying of lobes
<b>Spina Bifida</b>	Failure of neural tube closure
	Open-absence of skin covering
	Closed-occulta
<b>Arnold Chiari Malformation</b>	Three forms of malformation
	Type I-Most simple, just tonsils herniate
	Type II-Parts of brain deformed, Cerebellum and brain stem displaced
	Type III-Most complex, Hindbrain displaced. Often see
<b>Caudal Regression Syndrome</b>	Ranges in severity from absence of the sacrum with short femurs to complete fusion of the lower limbs/ Sirenomelia or mermaid syndrome
	Seen almost exclusively in infants born to diabetic mothers

**Communicating:**  
Obstruction from within

**Non-Communicating:**  
Obstruction from within



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**TOPICS**

Conception and First Trimester

Child and Growth

Cardiac Concepts

Normal Anatomy

Multiple Gestations

Doppler in Obstetrics

Third Trimester and Fourth Trimester

14 Weeks - 20 Weeks

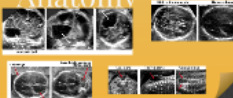
21 Weeks - 29 Weeks

30 Weeks - 36 Weeks

37 Weeks - 42 Weeks

**Neural Tube and the Face**

Normal Anatomy

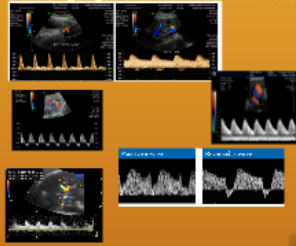


**Ancillary Parts**

Placenta

- Location
- Size
- Fetal Surface
- Color
- Shape
- Position
- Orientation
- Attachment
- Location
- Color

**Doppler Ideas**



*What do I need to know?*

**Multiple Gestations**



**Cardiac**

Cardiac



**Anatomy**

- Location
- Orientation
- Shape
- Size
- Color
- Position
- Attachment
- Location
- Color

**Skeletal System**

Know the Normals

1 2 3 4 5

**First Trimester**

What Does It Mean?



- Think Before You Look
- What are they really asking
- Recheck your answers
- Go with what you know
- Chew Gum
- Good Nights Sleep
- Analyze how you did on a similar test
- Answer questions in a strategic order:
  - Easy questions first to build confidence.
  - Then those with the most point value.
  - Eliminate obvious incorrect answers.

# *Skeletal System*

**Know the Normals**



- 
- **Long Bones**
  - **Spine**
  - **Calvarium**
  - **Planes we image these in**
  - **What they should look like**
  - **Standard Deviations that are normal vs abnormal**



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**TOPICS**

Conception and First Trimester

Normal Anatomy

Fetal and Growth

Auxiliary Parts

Cardiac Concepts

Doppler in Obstetrics

Third Trimester and Growth

Normal Anatomy

Normal

Anatomy

Neural Tube and the Face

Normal Anatomy

Auxiliary Parts

Placenta

- Location
- Size
- Color
- Shape
- Attachment
- Insertion
- Location of Umbilical Cord

**Doppler Ideas**

What do I need to know?

Multiple Gestations

- Think Before You Look
- What are they really asking
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- Chew Gum
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**Cardiac**

Cardiac

Anatomy

- Neural Tube
- Cardiac
- Thoracic Cavity
- Abdomen
- Genitalia
- Placenta
- Uterine Cervix
- Amniotic Sac

**Skeletal System**

Know the Normals

1 2 3 4 5

**First Trimester**

What Does it Mean?

# First Trimester



## Conception:

**Zygote**  
Two cells fuse to form a single cell.

**Morula**  
A ball of cells that has formed from the zygote.

**Gastrula**  
A stage in the development of an organism in which the three germ layers are formed.

**Embryo**  
A stage in the development of an organism in which the basic body plan is established.

**Fetus**  
A stage in the development of an organism in which the major organs and structures are formed.

## First Trimester

**Week 1**  
Fertilization of the egg and formation of the zygote.

**Week 2**  
Cleavage of the zygote into a morula.

**Week 3**  
Implantation of the morula in the uterine wall.

**Week 4**  
Formation of the three germ layers.

**Week 5**  
Development of the heart and neural tube.

**Week 6**  
Development of the limbs and facial features.

**Week 7**  
Development of the internal organs.

**Week 8**  
Development of the external features.

**Week 9**  
Development of the skeletal system.

**Week 10**  
Development of the reproductive system.

**Week 11**  
Development of the digestive system.

**Week 12**  
Development of the respiratory system.

# *Conception:*

Cystic structure in the ovary responsible for hormone release

Zona Pellucida

*Morula*

*Where does it take place*

Structure invading endometrium

Blastocyst

Arteries in uterus that respond to hormone fluctuation-support placenta

# First Trimester

<http://www.sonographycme.com/cfm/lectures>

Cavity embryo resides in

Secondary Yolk  
Sac

- size
- function
- shape

Nuchal Translucency

Gestational Sac  
Measurements

Rhombencephalon

CRL

Fetal Pole  
Growth  
Heart Rate

Double Decidual Reaction

MidGut Herniation



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Third Trimester and Growth  
 Date: 11/11/11  
 10/11 10/11 10/11 10/11

**TOPICS**

Conception and First Trimester

Normal Anatomy

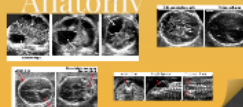
Fluid and Growth

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**Neural Tube and the Face**

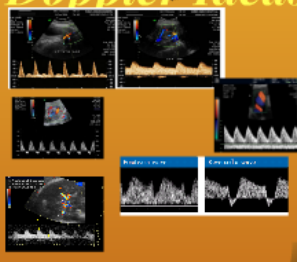
Normal Anatomy



**Ancillary Parts**

- Placenta
- Fetus
- Amnion
- Uterus
- Bladder
- Rectum
- Stomach
- Small Intestine
- Large Intestine
- Uterine Cervix
- Vagina
- Perineum

**Doppler Ideas**



*What do I need to know?*

**Multiple Gestations**



**Cardiac**

Cardiac



**Skeletal System**

Know the Normals

1 2 3 4 5

**First Trimester**

What Does It Mean?

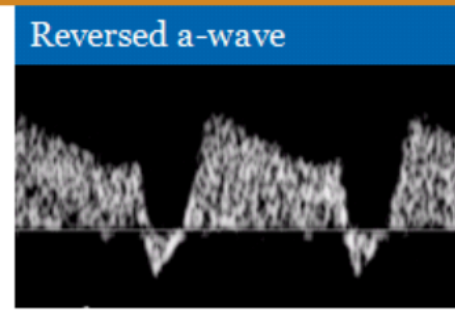
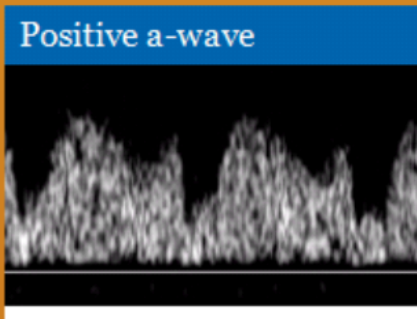
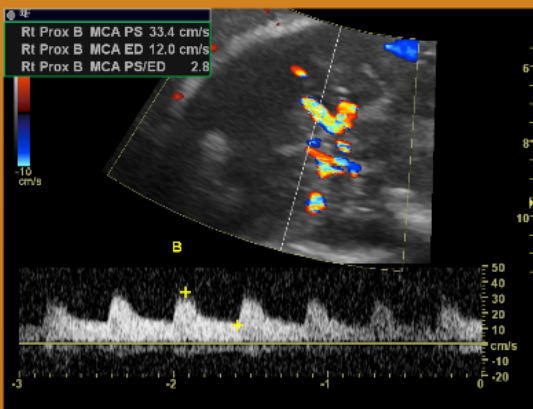
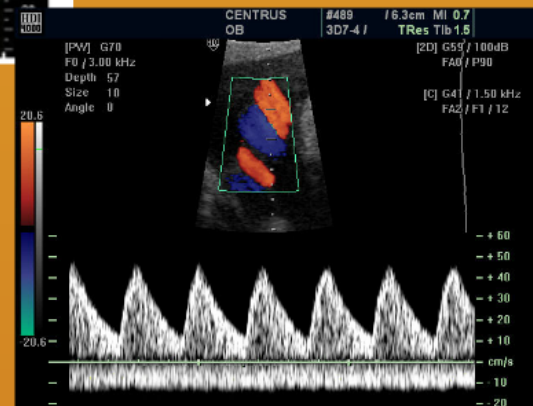
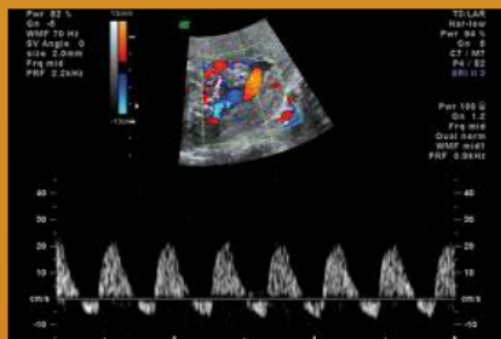
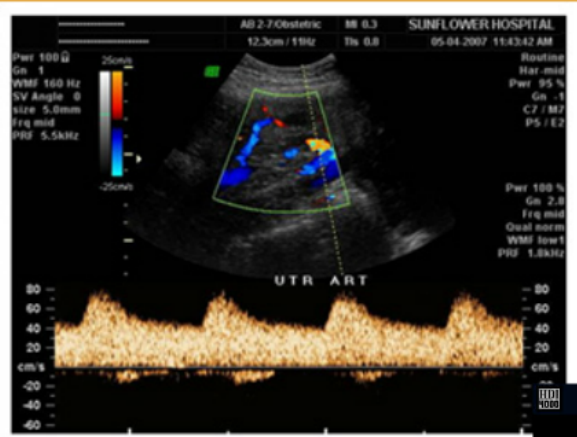
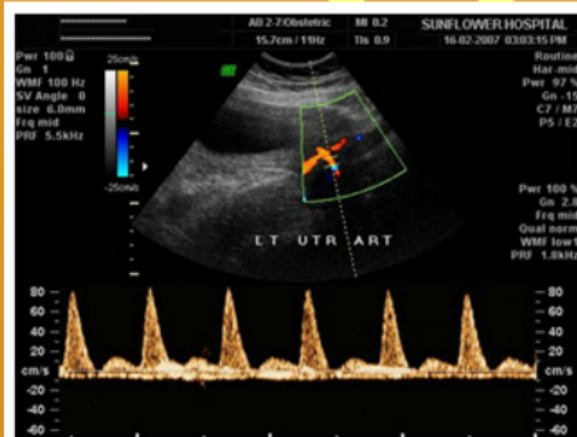


**Anatomy**

- Neck
- Head
- Thorax
- Abdomen
- Genitalia
- Extremities
- Spine
- Placenta
- Amnion
- Uterus
- Vagina
- Perineum

- Think Before You Look
- What are they really asking
- Recheck your answers
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- Analyze how you did on a similar test
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  - Eliminate obvious incorrect answers.

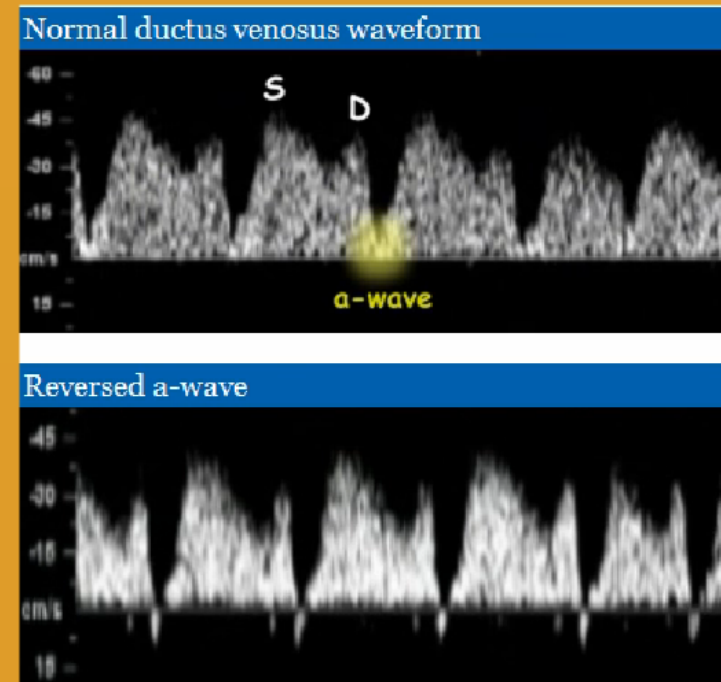
# Doppler Ideas



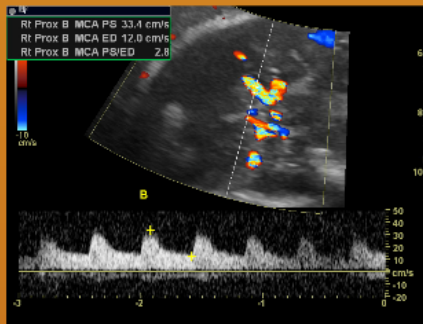
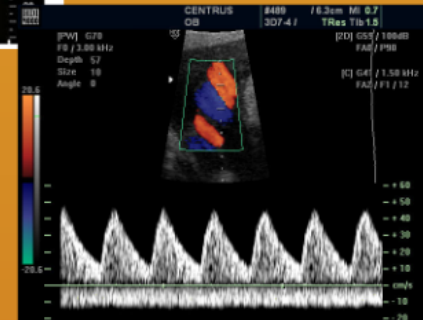
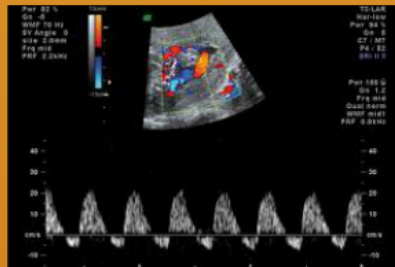
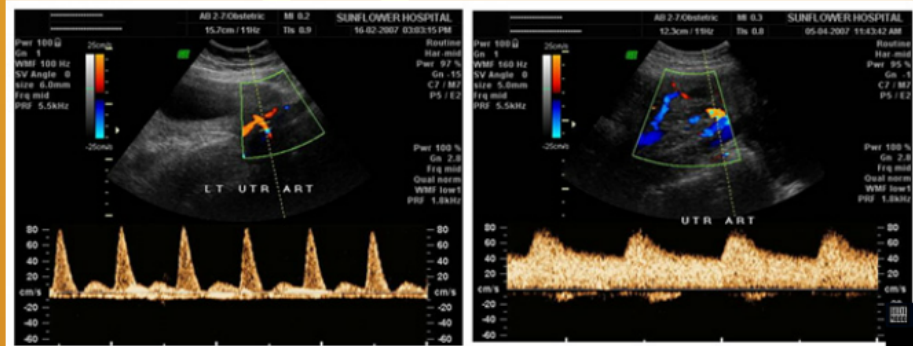
*Lots of flow=Low Resistance*

**Tough to get Flow=High Resistance**

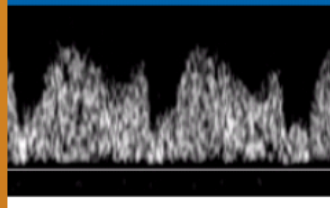
- ➔ Umbilical Vein=Continuous, monophasic
- ➔ Umb. Artery=Systolic and forward flow Diastolic. S/D=<3
- ➔ Ductus Venosus-Three peaks, S/D/A. Must see forward flow of all
- ➔ MCA=higher resistance, pulsatile, higher peak systolic. S/D>3



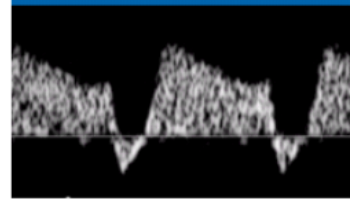
# Doppler Ideas



Positive a-wave



Reversed a-wave





# DMS 333 Final Review

Michelle Wilson Ed. D, RDMS RDCS, FSDMS

**TOPICS**

Conception and First Trimester

Normal Anatomy

Cardiac Concepts

Doppler in Obstetrics

Head Position and Neck

Paravertebral Arteries

CT: Thorax

*Neural Tube and the Face*

Normal Anatomy

**Ancillary Parts**

- Head
- Face
- Thorax
- Abdomen
- Genitalia
- Extremities
- Placenta
- Cord

**Doppler Ideas**

*What do I need to know?*

**Multiple Gestations**

**Cardiac**

Cardiac

**Anatomy**

- Neural Tube
- Face
- Thorax
- Abdomen
- Genitalia
- Extremities

**Skeletal System**

Know the Normals

1 2 3 4 5

**First Trimester**

What Does It Mean?

- Think Before You Look
- What are they really asking
- Recheck your answers
- Go with what you know
- Chew Gum
- Good Nights Sleep
- Analyze how you did on a similar test
- Answer questions in a strategic order:
  - Easy questions first to build confidence.
  - Then these with the most point value.
  - Eliminate obvious incorrect answers.

# Ancillary Parts

## Placenta

- Location
- Size
- Cord Insertion

## Adnexa

- Ovaries
  - Size
  - Lesions

## *Cervix*

- *Internal Os*
- *External Os*
- *Mucus Plug*
- *Location of Placenta*

# DMS 333 Final Review

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Third Trimester and Fourth  
 Quadrant: 4th Trimester, 4th Quadrant  
 4th Trimester: 4th Quadrant  
 4th Trimester: 4th Quadrant

**Neural Tube and the Face**  
 Normal Anatomy

**Ancillary Parts**

- Placenta
- Uterus
- Fetal Position
- Amniotic Fluid
- External Os
- Internal Os
- Size
- Location

**TOPICS**

- Conception and First Trimester
- Normal Anatomy
- Fetal and Growth
- Cardiac Concepts
- Doppler in Obstetrics

**Doppler Ideas**

What do I need to know?

**Multiple Gestations**

**Cardiac**

**Skeletal System**  
 Know the Normals

1 2 3 4 5

**First Trimester**

What Does it Mean?

**Anatomy**

- Neural Tube
- Face
- Spine
- Limbs
- Internal Organs
- External Organs

- Think Before You Look
- What are they really asking
- Recheck your answers
- Go with what you know
- Chew Gum
- Good Nights Sleep
- Analyze how you did on a similar test
- Answer questions in a strategic order:
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  - Eliminate obvious incorrect answers.

## Third Trimester and Growth

Biometrics-AC for Growth, BPD for dates

AFV    BPP    Doppler Study



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First trimester ultrasound  
Parameters: Crown-Rump Length  
CRL - 50 - 84 mm (10 weeks)

**TOPICS**  
Conception and First Trimester  
Normal Anatomy  
Fetal and Growth  
Maternal Health  
Cardiac Concepts  
Imaging in Obstetrics

**Multiple Gestations**  
Twinning  
MZ twinning  
DZ twinning  
Conjoined twinning  
Chorionicity  
Amnionicity

**Neural Tube and the Face**  
Normal Anatomy

**Ancillary Parts**  
Placenta  
Cord  
Fetal Membranes  
Amnion  
Decidua  
Uterus

**Doppler Ideas**

What do I need to know?

**Cardiac**  
Cardiac

**Anatomy**  
Cervix  
Vagina  
Uterus  
Ovary  
Fallopian Tube  
Bladder  
Rectum  
Sigmoid Colon

**Skeletal System**  
Know the Normals  
1 2 3 4 6

**First Trimester**  
What Does It Mean?

- Think Before You Look
- What are they really asking
- Recheck your answers
- Go with what you know
- Chew Gum
- Good Nights Sleep
- Analyze how you did on a similar test
- Answer questions in a strategic order:
  - Easy questions first to build confidence.
  - Then those with the most point value.
  - Eliminate obvious incorrect answers.

# Anatomy

Neural Tube

Cardiac

Thoracic Cavity

Abdomen

Face

Pelvis

Skeletal System

Ancillary Parts

# DMS 333 Final Review

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What do I need to know?

- Think Before You Look
- What are they really asking
- Recheck your answers
- Go with what you know
- Chew Gum
- Good Nights Sleep
- Analyze how you did on a similar test
- Answer questions in a strategic order:
  - Easy questions first to build confidence.
  - Then those with the most point value.
  - Eliminate obvious incorrect answers.

**TOPICS**

Concepts and First Trimester

Normal Anatomy

Cardiac Concepts

Disorder in Pregnancy

First Trimester and Second Trimester

Cardiac Concepts

Disorder in Pregnancy

**Neural Tube and the Face**

Normal Anatomy

**Auxiliary Parts**

Neural Tube

Face

Cardiac

Disorder in Pregnancy

**Doppler Ideas**

Normal Anatomy

Disorder in Pregnancy

**Multiple Gestations**

Normal Anatomy

Disorder in Pregnancy

**Cardiac**

Cardiac

Disorder in Pregnancy

**Anatomy**

Normal Anatomy

Disorder in Pregnancy

**Skeletal System**

Know the Normals

1 2 3 4 5

**First Trimester**

What Does It Mean?

Disorder in Pregnancy

# Multiple Gestations

Cleavage:

1-3

4-8

9-12

>13

Twin Peak Sign

Lambda Sign

T Sign

*Dizygotic vs Monozygotic*

- Gender
- Presentation
- Yolk Sacs
- Placentas
- Growth
- Anatomy

**Zygoty**

Dichorionic/Diamniotic

MC/DA

MC/MA

History:

Age

IVF

History of Twins

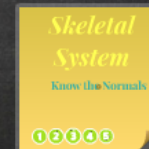
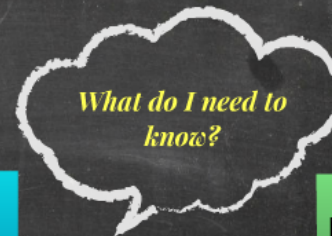




- Think Before You Look
- What are they really asking
- Recheck your answers
- Go with what you know
- Chew Gum
- Good Nights Sleep
- Analyze how you did on a similar test
- Answer questions in a strategic order:
  - Easy questions first to build confidence.
  - Then those with the most point value.
  - Eliminate obvious incorrect answers.

# DMS 333 Final Review

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- Think before you ask
- What are they really asking
- Recheck your answers
- Don't rush your answers
- Draw them
- Find 2 right's skew
- Answer how you did on a similar test
- Answer questions in a strategic order:
  - Easy questions first to build confidence
  - Then those with the most points value
  - Eliminate or skip incorrect answers