WHERE MATHEMATICS FITS IN GOD'S WORLD
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I. HOW DO WE DEFINE MATHEMATICS?
A. *What mathematics is not*
1. Quotes

a) Stanislaw Ulam (1909-1984), "What exactly is mathematics? Many have tried but nobody has really succeeded in defining mathematics; it is always something else."

b) Bertrand Russell (1872-1970), "Mathematics is the subject in which we never know what we are talking about, nor whether what we are saying is true."

c) Morris Kline (1908-1992), "Mathematics is a body of knowledge. But it contains no truths. The contrary belief, namely, that mathematics is an unassailable collection of truths, that it is like a final revelation from God such as religionists believe the Bible to be, is a popular fallacy most difficult to dislodge."

d) David Hilbert (1862-1943), "Mathematics is a meaningless, formal game."

e) College professor at a prominent Christian college (in the 1980s), "Integration is not possible in mathematics ... In mathematics God's revelation is silent. There is nothing to integrate ... the mathematician is not seeking for truth ... as far as mathematics goes there ain't nuthin' there."

2. Summary.

a) Mathematics is *not* just an assumedly "neutral" body of knowledge containing no truth content.

b) Mathematics is *not* just a "mind game."

c) Mathematics is *not* just about abstract properties of number.

d) Mathematics is *not* just about abstract properties of space.

e) Mathematics is *not* just about logic.

f) Mathematics can be defined.

B. *What mathematics is*
1. Scriptural insights (Psalm 36:9; Proverbs 1:7; Psalm 110:10; Colossians 2:3, 8; II Corinthians 10:4-5; Romans 12:1-2).

a) The biblical Christian presupposes that we can know truly on the basis of the Bible, God's verbal and written revelation.

b) This knowledge is not exhaustive (e.g., the Bible does not reveal knowledge about quadratic equations), but it is knowledge that brings a true perspective to all aspects of the human endeavor, eternal and temporal.

(1) Psalm 36:9 states, "In Thy light, we see light." This means that no one can see (or understand) anything truly unless they see it in the perspective of God's revelation of truth.

(2) Colossians 2:3 states, "… in Christ are hidden all the treasures of wisdom and knowledge."

c) This means that all aspects of wisdom and knowledge (not just the "spiritual" parts and including such analytical knowledge like quadratic equations) find

integrative meaning, purpose, and perspective in terms of the full and complete revelation of God in Christ.

d) These Scriptures state that true knowledge can only be acquired by a reverenced submission to the Living God.

(1) If the biblical Christian knows on the basis of the Bible's revelation of God in Christ, then it is imperative that the biblical Christian know how to read, write, and cipher.

(2) The biblical Christian must know how to read in order to understand in truth God's revelation of Himself in Scripture and in creation.

(3) The biblical Christian must know how to write in order to communicate God's truth to others.

(4) The biblical Christian must know how to count in order to understand and develop the created order.

2. Etymology.

a) Mathematics: from the Greek μαθητης (*mathetes*) meaning "learner or disciple."

b) It is the root of the Old English *mathein,* "to be aware," and the Old German *munthen,* "to awaken."

3. Quotes.

a) Christian apologist Cornelius Van Til (1895-1987), "As Christians we must not allow that even such a thing as enumeration or counting can be *accounted for* except upon the supposition of the truth of what we are told in Scripture about the triune God as the Creator and Redeemer of the world."

b) Christian theologian Vern Poythress, "… in exploring mathematics one is exploring the nature of God's rule over the universe, i.e., one is exploring the nature of God Himself."[2]

c) Christian scientist Johannes Kepler (1571-1630), "The chief aim of all investigations of the external world should be to discover the rational order and harmony which has been imposed on it by God and which He revealed to us in the language of mathematics."

4. Summary statement of definition: *Mathematics is a mental discipline that makes use of the abstract formulation of ideas suggested by the patterned structure of God's creation. It is the artful use of the God-given reasoning processes to make connections (find unity in diversity) and then to infer and deduce new facts about creation; i.e., to discover the wisdom of God in Christ hidden in creation (see Proverbs 25:2). It is a series of significant assertions about the nature of creation and its conclusions impact almost all the arts and sciences (either in the context of aesthetical beauty or dominion mandate applications).*

References:
1 Cornelius Van Til, in E. R. Geehan, ed., *Jerusalem and Athens,* pp. 90f.
2 Vern Poythress, "A Biblical View of Mathematics," in *Foundations of Christian Scholarship, p. 184.*

C. *What mathematics involves*
1. *Method.*
a) Induction: the search for pattern (e.g., Kepler).

(1) From the particular to the general.
(2) Acknowledges intuitional capabilities.
b) Deduction: the development of logic (e.g., Newton).
(1) From the general to the particular.
(2) Acknowledges rational capabilities.

2. *Map* (unity in diversity).
a) A given body of interconnected knowledge.
b) Connections between the mind and the physical creation.
c) Connections within the structure of mathematics.

3. *Mastery.*
a) Unique style and *language*.
b) You must learn to manipulate symbols and equations (order and operations).
c) Similar to art appreciation – an equation, if seen in the right perspective, can be beautiful.
d) Since all knowledge is based upon God and since the ability to count, like reading and writing, is God's gift to man, then it is imperative that we, as teachers, seek to develop these gifts in our children and our students.
(1) There are many realms of mathematics which include the theory of number, the practice of arithmetic, and the description of the patterned order of creation.
(2) Since mathematics reflects the patterns of God's created order, then the language of that pattern is mathematics.
(3) Just like any other language, we must understand the grammar of mathematics if we want to effectively obey God's command to take dominion over what He has made.

4. *Memory.*
a) Training in the ability to "see" mathematics in the mind.
b) Rote memory is always linked to understanding.
5. *Manner.*
a) "Fire" in the equations (developed by worshipping the God of creation).
b) Mathematics is logic on fire (passion).
c) Mathematics is to be studied with the windows of the mind open to the wonderful world of God's making.

II. WHAT CAN THE SCRIPTURAL GRID TEACH US ABOUT MATHEMATICS?
A. *Creation* and the cultural mandate
1. Genesis 1 (cf. John 1:1-3).
a) Creation through the Word.
(1) God's *speech* is the source and the sustenance of every aspect of the physical creation, visible and invisible (Colossians 1:15-17).
 (2) Sound waves and the entire electromagnetic spectrum (light, x-rays, etc.) are all *oscillatory* (periodic) and can be described using trigonometric functions.
(3) Goal of creation: dependent man and independent God in *fellowship* (all of grace – He *blessed* man before he required any obedience from him).
(4) Goodness of Creation – Interconnectedness and full of patterned order (Jeremiah 31:36f).
(5) Creation points to a Creator.
b) Man commanded to take dominion (Genesis 1:26-27). Larry Zimmerman, "God commands His children to subdue and replenish the earth and take dominion over it …. mathematics is essential in subduing and replenishing tasks ….
Without a working knowledge of the patterns of God's speech used in the creation, humans are powerless to replenish the earth and are in danger of being themselves subdued by it."3

2. Genesis 2:15, 19-20.
a) Cultivate the garden (Genesis 2:15) – foundation of culture.
b) Adam commanded to "name" the animals (identify characteristics that "map" the animal).
c) Mathematics is all about "naming" the creation – number is a tool of dominion.
d) Creation is filled with patterns and order reflecting the "language fabric" of God's sustaining word of power; sometimes it takes diligent "prospecting" to discover them (Proverbs 25:2).

B. *The Fall* and the cultural mandate (Genesis 3).
1. Man and God out of fellowship: dominion becomes destructive (but not totally so due to God's control).

2. Fruits of sin: Boxes 2 & 3 (abstract) absolutized.
a) Misplaced pride of ownership.
(1) Blurs the distinction between the mathematics excavated (patterns of creation) and the tools (mind of man) used for its excavation.
(2) Misplaced pride results in statements like, "Mathematics is solely the invention of the human mind."

b) Fruits of abstraction absolutized.
(1) "Games in the abstract"; e.g. "pure mathematics."
(2) Pedagogy: a tendency to forget about boxes 1 & 4 -- mathematics is just a bunch of "chicken scratches on the blackboard."

(3) Our minds are gifts from God to be used to further His glory and honor, not our own.
(4) Johannes Kepler, "The astronomers, as priests of God to the book of nature, ought to keep in their minds not the glory of their own intellect, but the glory of God above everything else."

C. *Redemption* and the cultural mandate
1. Returns man to the *safety* of dependence.
2. Independent man is "out of control."
3. Both mathematics and mathematicians must be subject to the Lordship of God in Christ.

III. HOW DO WE CULTIVATE A DISTINCTIVELY BIBLICAL CHRISTIAN VIEW OF MATHEMATICS?
A. What is a distinctively Biblical Christian View of Mathematics? Christ is the *point marker* – He is the mediator of *both* redemption and creation.
1. God is the Lord of *truth*: mathematics, although man's perception of it changes through history, points to ultimate truth – the wisdom of God in Christ.
2. God is the Lord of *beauty*: symmetry in mathematics.
3. God is the Lord of *goodness* – God in Christ is the author of all connections wonderful and delightful.

B. Why *cultivate* a distinctively Biblical Christian View of mathematics?
1. *Appreciate* the power and wonder of mathematics.
2. *Advocate* (communicate) this wonder in the Holy Spirit (mathematics will not be boring).
3. *Adorn*: Humbly give God the best of your thoughts and words.
C. Where do we cultivate a distinctively Biblical Christian View of mathematics?
1. *Couch* (home): parents must be trained to understand the implications of the biblical Christian world view for mathematics.
2. *Church*: must recognize the God is the Lord of *all* truth or else we have God is the Lord of "spiritual" truth.
3. *Classroom*: where "boys become men" – how are you teaching?
a) By the book? Which book? *The Book of God's works!*
b) I've always done it this way.
c) Explore, record, reflect, and research (the best teacher is always a student) – develop your teaching and your "fire" for mathematics by *worship.*
4. *Culture*.
Johannes Kepler encountered the Living God as he explored the mathematics of God's creation; after he developed the elliptical law of the motion of the planets around the Sun, he fell to his knees and exclaimed, "My God! I am thinking Thy thoughts after Thee!"
a) Teacher to student.
(1) Mentor relationship.
(2) Takes time and investment.
(3) Lead the student to greater heights than you have obtained.

b) Because of these dominion imperatives, Christian educators are required under God to adequately develop math skills and understanding in their students.
(1) If we can show students that their math work is part of gaining a working knowledge of the way God has ordered His creation, then we have overcome a major motivational obstacle that sometimes is phrased as a question: "Why do we have to learn math?"
(2) We learn math in order to catch a glimpse of God's creational speech.
(3) As we learn mathematics, we are one step away from discerning the patterned order of creation.
(4) As we learn this patterned order, then we are one step away from the encountering the Living God.
(5) The goal of teaching mathematics is to instill in the student this response of praise to God.
(a) Not praise to themselves because of their ability to do math, but praise to the Living God who has granted them the gift of logical reasoning whereby they can worshipfully discern the faithfulness of God revealed in the created order.
(b) Result – cultural renaissance (in a full-orbed biblical Christian sense); salt and light indeed!