MIDTERM REVIEW

① N

because postulate states "2 points determine a line."

② A

coplanar

With any 3 pts, you can form a plane, therefore, "coplanar".

③ $|-5-17| = 22$

$AB = 22$

④ $|-6-d| = 15$

$-6-d = 15$ $\quad -6-d = -15$

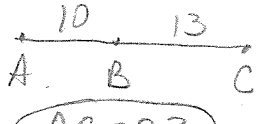
$-21 = d$ $\quad 9 = d$

$D = -21$ or 9

⑤ S

not PR

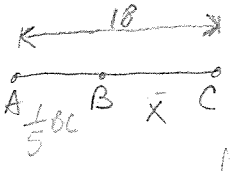
⑥



$AC = 23$

$AC = 3$

⑦



Let $x = BC$

$AB = \frac{1}{5}x$

$\frac{1}{5}x + x = 18$

$\frac{6}{5}x = 18$

$x = 15$

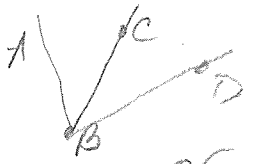
$AB = 3$

$BC = 15$

⑧ _____

endpoint or vertex

⑨ S



or

⑩ $m\angle ABD = 70°$

$(110 - 40 = 70)$

⑪ T

⑫ $x_m = \frac{-1+5}{2} = 2$

$y_m = \frac{6+10}{2} = 8$

midpt $= (2, 8)$

⑬

$7x + 2 = 2(46 - x)$

$x = 10$

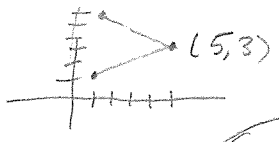
$m\angle ABD = 72$

⑭ Yes.

Definition of equilateral: at least 2 sides

⑮ (1,1) (1,5)

$d = 4$



(1,1) (5,3)

$d = \sqrt{(5-1)^2 + (3-1)^2}$

$= \sqrt{20} = 2\sqrt{5}$

(1,5) (5,3)

$d = \sqrt{(5-1)^2 + (3-5)^2}$

$= \sqrt{20} = 2\sqrt{5}$

Isosceles triangle

(16) If quads. are rectangles, then they have ≅ diagonals.

a) True

b) If quads have ≅ diagonals, then they are rectangles.
False

c) If quadrilaterals are not rectangles, then they do not have ≅ diagonals.
False

d) If quadrilaterals do not have ≅ diagonals, then they are not rectangles.

(17) S (18) A

(19) Answer varies.
Lines are perpendicular if and only if they form right angles.

(20) H: If a quadrilateral is a rectangle,
C: then it has a right angle

(21) a) $m\angle B = 65x$
complement $= 90 - 65x$
Supplement $= 180 - 65x$

(22) Let x = meas. of the supplement
$6 + 2x$ = meas. of the angle

$6 + 2x + x = 180$
$3x = 174$
$x = 58$

m of angle $= 122°$
m. of supple. $= 58°$

(23) Let $3x$ = meas. of $\angle$
$2x$ = meas. of complement

$3x + 2x = 90$
$5x = 90$
$x = 18$

$m\angle = 54°$
m. complement $= 36°$

(24) S

(25) A ray, line, or segment that is ⊥ to a segment and intersects the segmt at its midpoint.

True ✓ False 40/50

(26) S

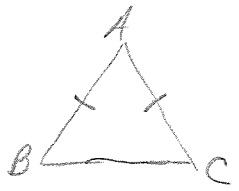
(27) OMIT

(28) c, d, f, g, h, j

(29) If the 2 sides of a △ are ≅, then the angles opposite them are ≅.

Given: $\overline{AB} \cong \overline{AC}$

Prove: $m\angle B \cong m\angle C$



(30) a) $\angle AFD \cong \angle BFE$

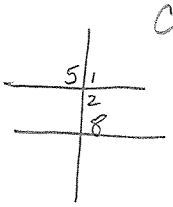
b) $\overline{AB} \cong \overline{CE}$

c) $\overline{BD} \cong \overline{CE}$

(31) a) f ∥ e ; If lines form corresp. ∠s ≅, then lines ∥.

b) c ∥ o ; If 2 lines are ⊥ to same line, they are ∥.

c) supplementary ; ∠5 supplements ∠1 and ... ∠1 ≅ ∠8 corresp. ∠s
therefore ∠5 suppl. ∠8 ;
or ∠5 ≅ ∠2 (vertical ∠s) and
∠2 & ∠8 suppl. (same side int. ∠s)



d) c and n ; alternate interior ∠s ≅.

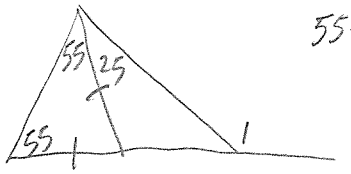
e) NONE

f) f and e ; alternate int. ∠s ≅.

g) supplementary ; same side int ∠s suppl.

Midterm Review

(32) $m\angle 1 = 135°$



$55+55+25$

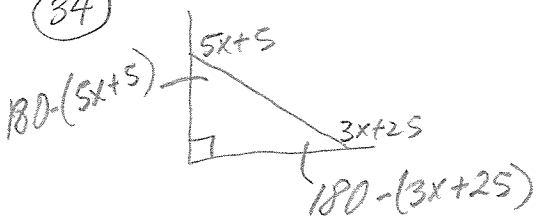
(33) $5x-6+3x+4+10x+2=180$

$x=10$

$44°, 34°, 102°$

m. of largest $\angle = 102°$

(34)



$180-(5x+5)+180-(3x+25)=90$

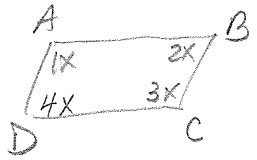
$x=30$

acute $\angle$s: $25°$ & $65°$

(35) Lines that are not coplanar.

(36) To tile a plane, figures must fit together to cover 360°. Each interior angle of a regular pentagon is 108°. If you fit 3 of these together with no overlap, they will cover 324° leaving a gap. If you try a 4th pentagon, it will overlap with the others (432°).

(37)



$x+2x+3x+4x=360$

$10x=360$

$x=36$

$36°, 72°, 108°, 144°$

$\overline{AB} \parallel \overline{CD}$

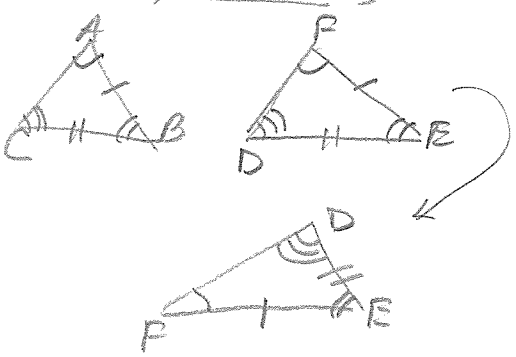
Trapezoid

(38) Sum of interior $\angle$s $= 1080°$

Sum of ext. $\angle$s $= 360°$

(39) S, Yes when $\triangle ABC$ and $\triangle FED$ are equilateral.

NO, scalene $\triangle$s



(40) $x-2=16-x$

$2x=18$

$x=9$

ck

$7=7$

$LM=2x-14$

$=18-14$

$LM=4$

(41) SSS SAS ASA AAS

HL (for Rt $\triangle$s only)

(42)

(43) a) midpt $x_m = \frac{x_1 + x_2}{2}$ $y_m = \frac{y_1 + y_2}{2}$

b) slope $m = \frac{y_2 - y_1}{x_2 - x_1}$

c) distance $= \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

d) $y = mx + b$

(44) $5 = -3(-2) + b$

$5 = 6 + b$

$-1 = b$

$y = -3x - 1$

(45) a) $x_m = \frac{-2+4}{2} = 1$

$y_m = \frac{1-3}{2} = -1$

$(1, -1)$

b) $m_{\overline{AB}} = \frac{1+3}{-2-4} = \frac{4}{-6} = -\frac{2}{3}$ $m_{\overline{AB}} = -\frac{2}{3}$

c) $d_{\overline{AB}} = \sqrt{(-2-4)^2 + (1+3)^2}$

$= \sqrt{36 + 16} = \sqrt{52} = \sqrt{4 \cdot 13} = 2\sqrt{13}$

d) midpoint $= (1, -1)$

$m_{\overline{AB}} = -\frac{2}{3} \rightarrow m_{\perp} = \frac{3}{2}$

$y = mx + b$

$-1 = \frac{3}{2}(1) + b$

$-1 = \frac{3}{2} + b$

$-\frac{2}{2} - \frac{3}{2} = b$

$-\frac{5}{2} = b$

$y = \frac{3}{2}x - \frac{5}{2}$

(46) a) $m_{\overline{AB}} = \frac{-1-2}{-2+1} = \frac{-3}{-1} = \frac{3}{1}$

$m_{CD} = \frac{3}{1} = \frac{(-3-x)}{(-1-x)}$

$3(-1-x) = -3-x$

$-3-3x = 2x$

$0 = 2x$

$0 = x$

$(0,0)$

b) $m_{CD} = -\frac{1}{3}$

$-\frac{1}{3} = \frac{(-3-x)}{(-1-x)}$

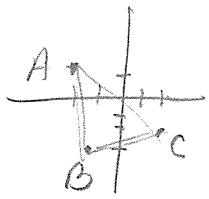
$3(-3-x) = -1(-1-x)$

$-9-3x = 1+x$

$-10 = 4x$

$-\frac{5}{2} = x$

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

(47) 

$m_{\overline{AB}} = \frac{-3-1}{-1+2} = \frac{-4}{1}$

$m_{\overline{BC}} = \frac{-3+2}{-1-2} = \frac{-1}{-3} = \frac{1}{3}$

$m_{\overline{AC}} = \frac{1+2}{-2-2} = \frac{3}{-4}$

No, NOT Rt. Δ.

(48) $A(2,7)$ $M(5,-4)$

$x_m = \frac{x_2+x_1}{2}$ $y_m = \frac{y_1+y_2}{2}$

$5 = \frac{2+x}{2}$ $-4 = \frac{7+y}{2}$

$10 = 2+x$ $-8 = 7+y$

$8 = x$ $-15 = y$

$B(8, -15)$

(49) a) $m = \frac{5+4}{3+5} = \frac{9}{8}$

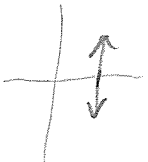
$5 = \frac{9}{8}(3) + b$

$5 - \frac{27}{8} + b$

$\frac{13}{8} = b$

$y = \frac{9}{8}x + \frac{13}{8}$

b) $m = \frac{7+1}{6-6} = \frac{18}{0}$



$x = 6$

c) $m = 0$

$y = 4$

(50) $x+2y=4$

$2y=-x+4$

$y=-\frac{1}{2}x+2$

$m=-\frac{1}{2}$

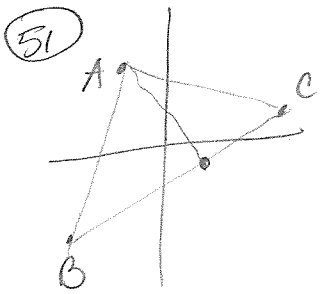
$m_\perp = 2$

$3=2(5)+b$

$-7=b$

$y=2x-7$

(51)



$m_{\overline{BC}} = \frac{-4-2}{-8-6} = \frac{-6}{-14} = \frac{3}{7}$

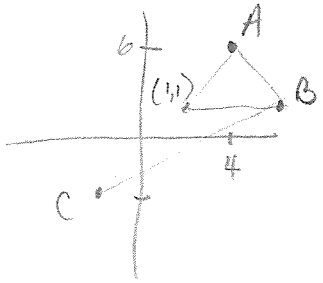
$m_\perp = -\frac{7}{3}$ $A(-2,6)$

$6=-\frac{7}{3}(-2)+b$

$\frac{4}{3}=b$

$y=-\frac{7}{3}x+\frac{4}{3}$

(52)



midpt of $\overline{AC}$: $\frac{(4-2)}{2}$ $\frac{(6-4)}{2}$ $(1,1)$

$x_m=1$ $y_m=1$

$\text{slope}_{\overline{BD}} = \frac{2-1}{6-1} = \frac{1}{5}$

$1=\frac{1}{5}(1)+b$

$\frac{4}{5}=b$

$y=\frac{1}{5}x+\frac{4}{5}$

(53 b)

$P \vee \sim T$

$L \to T$

$\sim L \to H$ ✓

$\sim H$ ✓

$\therefore P$

① $\sim L \to H$, $\sim H$ → ② L

③ $L \to T$ → ④ T

⑤ $P \vee \sim T$ → ⑥ P

① Given

② Contrapositive Inference

③ Given

④ Law of Detachment

⑤ Given

⑥ Disjunctive Inference

(54)
1. Opposite sides $\cong$.
2. Opposite sides parallel.
3. Diagonals bisect each other.
4. Opposite $\measuredangle$s $\cong$.
5. Consecutive $\measuredangle$s supplementary.

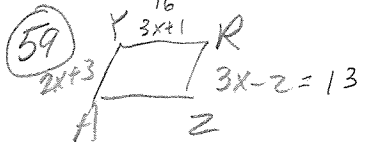
(55)
1. Diagonals are $\cong$.
2. Has 4 right $\measuredangle$s.

(56)
1. All 4 sides $\cong$.
2. Diagonals are perpendicular.
3. Diagonals bisect $\measuredangle$s they are drawn from.

(57) parallelogram, rectangle, rhombus

(58)
1. 2 pairs of sides $\cong$.
2. 2 pairs of sides $\parallel$.
3. 1 pair of opp sides $\cong$ & $\parallel$.
4. Diagonals bisect each other.
5. 2 pairs of opp $\measuredangle$s $\cong$.
6. One $\measuredangle$ is supplementary to both consecutive $\measuredangle$s.

(59)



$2x+3 = 3x-2$

$5 = x$

$32+26=58$

Perimeter = 58

Midterm Review

(60)

$d_{\overline{WX}} = \sqrt{(4-0)^2+(0-3)^2}$
$= \sqrt{25} = 5$

$d_{\overline{ZY}} = \sqrt{(0+4)^2+(0+3)^2}$
$= \sqrt{25} = 5$

$m_{\overline{WZ}} = \frac{0+3}{4-0} = \frac{3}{4}$

$m_{\overline{ZY}} = \frac{0+3}{-4} = -\frac{3}{4}$

$d_{\overline{WZ}} = \sqrt{16+9}$
$\sqrt{25} = 5$

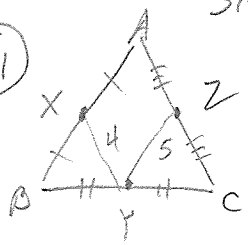
$d_{\overline{XY}} = \sqrt{16+9}$
$= 5$

Since opp sides $\cong$, yes, it is a parallelogram

Since all sides $\cong$, yes, it is a rhombus.

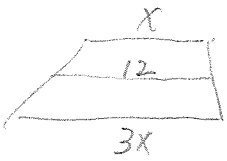
Since slopes are not neg. reciprocals, it is not a rectang

(61)



$AC = 8$
$AB = 10$
$3z - 18 = 14 = BC$, so $x = 7$

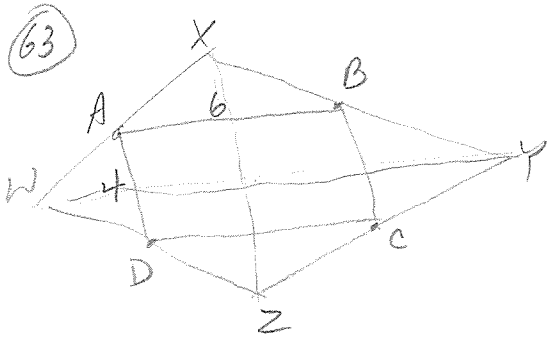
(62)



$12 = \frac{1}{2}(x+3x)$
$24 = 4x$
$6 = x$

$base_1 = 6$
$base_2 = 18$

(63)



$BC = 4$
$DC = 6$