Analytic Geometry Strand Expectations:

1) model and solve problems involving the intersection of two straight lines

2) solve problems using analytic geometry involving properties of lines and line segments

3) verify geometric properties of triangles and quadrilaterals,using analytic geometry

May 30-8:39 AM

Jan 9/2012

Analytic Geometry Strand Expectations:

1) model and solve problems involving the intersection of two straight lines

- point of intersection (x, y)
  - → solve 2 linear equations
  - → substitution, elimination, graphing
- table of values
- model as equation : $y = mx + b$

  $Ax + By + C = 0$

- 1 solution, 0 solutions, infinite solutions
  - parallel but not the same
  - same lines

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Analytic Geometry Strand Expectations:

2) solve problems using analytic geometry involving properties of lines and line segments

$y = mx + b$ (slope, y-intercept)

x-intercept: set $y = 0$

$m = \frac{\text{rise}}{\text{run}} = \frac{\Delta y}{\Delta x} = \frac{y_2 - y_1}{x_2 - x_1}$

perpendicular slope: $m_\perp = -\frac{1}{m}$

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

$M\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$

$x^2 + y^2 = r^2$

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Analytic Geometry Strand Expectations:

3) verify geometric properties of triangles and quadrilaterals,using analytic geometry

- altitude, median, perpendicular bisector
  - altitude → orthocentre
  - median → centroid
  - perpendicular bisector → circumcentre
  - (orthocentre, centroid, circumcentre) → triangle centres
- isosceles, equilateral, scalene
- square, rhombus, rectangle, parallelogram

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Assigned work for Monday - Tuesday:

p. 189 # 1-15
(solve fully, not just as multiple choice)

May 30-10:13 AM

1. Solve system

$3x - 2y = -11$ ①
$5x + y = -1$ ②
$y = -5x - 1$ ③
sub ③ into ①
$3x - 2(-5x - 1) = -11$
$3x + 10x + 2 = -11$
$13x = -11 - 2$
$13x = -13$
$x = \frac{-13}{13}$
$x = -1$
sub $x = -1$ into ②
$5(-1) + y = -1$
$-5 + y = -1$
$y = -1 + 5$
$y = 4$
∴ C. $(-1, 4)$
satisfies both equations

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1. LS/RS check

A.

LS	RS
$3x-2y$	-11
$3(-3)-2(2)$	-11
$-15+4$	-11
-11	-11

$\therefore LS = RS$

LS	RS
$5x+y$	-1
$5(-3)+(2)$	-1
$-25-2$	-1
-27	-1

$\therefore LS \neq RS$

B.

LS	RS
$3(1)-2(7)$	-11
$3-14$	-11
-11	-11

$\therefore LS = RS$

LS	RS
$5(1)+(7)$	-1
$5+7$	-1
12	-1

$\therefore LS \neq RS$

✓C.

LS	RS
$3(-1)-2(4)$	-11
$-3-8$	-11
-11	-11

$\therefore LS = RS$

LS	RS
$5(-1)+4$	-1
$-5+4$	-1
-1	-1

$\therefore LS = RS$

$\therefore (-1, 4)$ satisfies both

$LS = 3x-2y \quad RS = -11$

$= 3(-1)-2(4)$

$= -3-8$

$= -11$

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2. LS/RS

A LS RS

5 (2)-3

5 -1

LS ≠ RS

B

LS	RS
$(5)-2(2)$	1
$5-4$	1
1	1

LS = R

LS	RS
$3(3)-4(2)$	7
$15-8$	7
7	7

LS = RS

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3. Rearrange equation

$5x-4y+6=0$

$\frac{5x}{4}+\frac{6}{4}=\frac{4y}{4}$

$1.25x+1.5=y$

$y=1.25x+1.5$

∴ A is the equivalent equation

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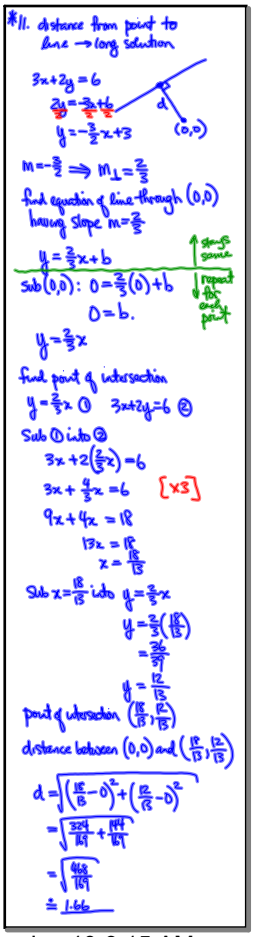

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