Algebra 3 Assignment # 2

(1) Find the distance between each of the following pairs of points please.

(a) $(6\ ,\ 3)$ and $(-2\ ,\ 3)$

(b) $(-3\ ,\ 6)$ and $(2\ ,\ -6)$

(c) $(9\ ,\ -17)$ and $(-3\ ,\ 7)$

(d) $\left(\frac{1}{3}\ ,\ \frac{5}{6}\right)$ and $\left(\frac{1}{2}\ ,\ \frac{3}{4}\right)$

(2) Triangle ΔABC has vertices $A(-2\ ,\ 2)$, $B(6\ ,\ 8)$, $C(4\ ,\ -1)$. Find each of the following.

(a) The equation of $\overleftrightarrow{AC}$.

(b) The length of $\overline{AC}$.

(c) The length of the median to $\overline{AB}$.

(d) The equation of the altitude to $\overleftrightarrow{AC}$.

(e) The length of the altitude to $\overleftrightarrow{AC}$.

(3) Triangle ΔABC has vertices $A(-2\ ,\ -1)$, $B(0\ ,\ 1)$, $C(6\ ,\ -5)$. Find each of the following.

(a) The perimeter of ΔABC.

(b) The length of the median to the longest side of ΔABC.

(c) The equation of the perpendicular bisector of the shortest side of ΔABC.

(d) The coordinates of the point where the three medians intersect (the centroid).

(e) The coordinates of the point where the three perpendicular bisectors intersect (the circumcenter of the triangle).

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Answers

(1) **(a)** 8

(b) 13

(c) $12\sqrt{5}$

(d) $\frac{\sqrt{5}}{12}$

(2) **(a)** $y = -\frac{1}{2}x + 1$

(b) $3\sqrt{5}$

(c) $2\sqrt{10}$

(d) $y = 2x - 4$

(e) $4\sqrt{5}$

(3) **(a)** $8\sqrt{2} + 4\sqrt{5}$

(b) $2\sqrt{5}$

(c) $y = -x - 1$

(d) $\left(\frac{4}{3}, -\frac{5}{3}\right)$

(e) $(2, -3)$

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