DIRECTIONS: Find (a) the distance between each pair of points, and (b) the midpoint of the line segment connecting the points. Express all radicals in simplest form.

1. $(13,6),(0,6)$
13
$(\frac{13}{2},6)$

2. $(0,8),(-6,0)$
10
$(-3,4)$

3. $(0,6),(-5,-1)$
$\sqrt{74}$
$(-\frac{5}{2},\frac{5}{2})$

4. $(9,1),(2,-1)$
$\sqrt{53}$
$(\frac{11}{2},0)$

5. $(3,2),(5,6)$
$2\sqrt{5}$
$(4,4)$

6. $(-4,-3),(2,1)$
$2\sqrt{13}$
$(-1,-1)$

7. $(2,2),(\frac{1}{3},-2)$
$\frac{13}{3}$
$(\frac{7}{6},0)$

8. $\left(\frac{1}{2},-1\right),(-1,1)$
$\frac{5}{2}$
$(-\frac{1}{4},0)$

9. $(0,0),(11,11)$
$11\sqrt{2}$
$(\frac{11}{2},\frac{11}{2})$

10. $(0,0),(5,5)$
$5\sqrt{2}$
$(\frac{5}{2},\frac{5}{2})$

11. $\left(\sqrt{2},1\right),(-\sqrt{2},0)$
3
$(0,\frac{1}{2})$

12. $\left(5,\sqrt{5}\right),(3,-\sqrt{5})$
$2\sqrt{6}$
$(4,0)$

13. $\left(1+\sqrt{5},2+\sqrt{3}\right),(1-\sqrt{5},-2+\sqrt{3})$
6
$(1,\sqrt{3})$

14. $\left(\sqrt{6}+1,\sqrt{3}-\sqrt{2}\right),(\sqrt{6}-1,\sqrt{3}+\sqrt{2})$
$2\sqrt{3}$
$(\sqrt{6},\sqrt{3})$

15. $(a,b),(0,b)$
$|a|$
$(\frac{a}{2},b)$

16. $(-a,b),(2a,4b)$
$3\sqrt{a^2+b^2}$
$(\frac{a}{2},\frac{5b}{2})$

17. $(a+b,a-b),(b-a,b+a)$
$2\sqrt{a^2+b^2}$
(b,a)

18. $\left(a,\sqrt{ab}\right),(b,-\sqrt{ab})$
$|a+b|$
$(\frac{a+b}{2},0)$

DIRECTIONS: M is the midpoint of $\overline{PQ}$. Find the coordinates of Q.

19. $P(0,0),M(3,5)$
$(6,10)$

20. $P(-4,3),M(0,0)$
$(4,-3)$

21. $P(-4,0),M(3,3)$
$(10,6)$

22. $P(6,-2),M(0,5)$
$(-6,12)$

23. $P(h,k),M(0,0)$
$(-h,-k)$

24. P(0, 0), M(h, k)
(2h, 2k)