

Alg 2  
CH 13  
Sec 13.6

p 752 11-18, 23-25, 38-41

11.  $y = \tan 5\theta$

$P = \pi/5$

| $\theta$  | $y$       |
|-----------|-----------|
| 0         | 0         |
| $\pi/10$  | undefined |
| $\pi/5$   | 0         |
| $3\pi/10$ | undefined |
| $2\pi/5$  | 0         |

Asymptotes at

$\theta = \pi/10, 3\pi/10$

12.  $y = \tan \frac{3\theta}{2}$

$P = \pi/3/2 = 2\pi/3$

| $\theta$ | $y$       |
|----------|-----------|
| 0        | 0         |
| $\pi/3$  | undefined |
| $2\pi/3$ | 0         |
| $\pi$    | undefined |
| $4\pi/3$ | 0         |

Asymptotes at

$\theta = \pi/3 + \pi$

13.  $y = \tan 4\theta$

$P = \pi/4$

| $\theta$ | $y$       |
|----------|-----------|
| 0        | 0         |
| $\pi/8$  | undefined |
| $\pi/4$  | 0         |
| $3\pi/8$ | undefined |
| $\pi/2$  | 0         |

Asymptotes at

$\theta = \pi/8 + 3\pi/8$

14.  $y = \tan \frac{2\theta}{3}$

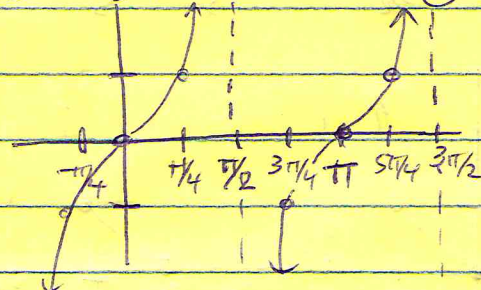
$P = \frac{\pi}{2/3} = \frac{3\pi}{2}$

| $\theta$ | $y$       |
|----------|-----------|
| 0        | 0         |
| $3\pi/4$ | undefined |
| $3\pi/2$ | 0         |
| $9\pi/4$ | undefined |
| $3\pi^2$ | 0         |

Asymptotes at

$\theta = 3\pi^2/4, 9\pi^2/4$

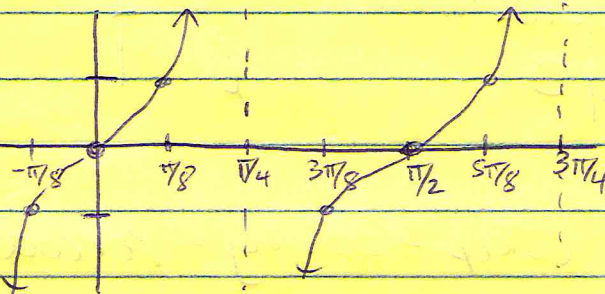
15.  $y = \tan \theta$   $P = \pi$   
(parent)



| $\theta$ | $y$       |
|----------|-----------|
| 0        | 0         |
| $\pi/2$  | undefined |
| $\pi$    | 0         |
| $3\pi/2$ | undefined |
| $2\pi$   | 0         |

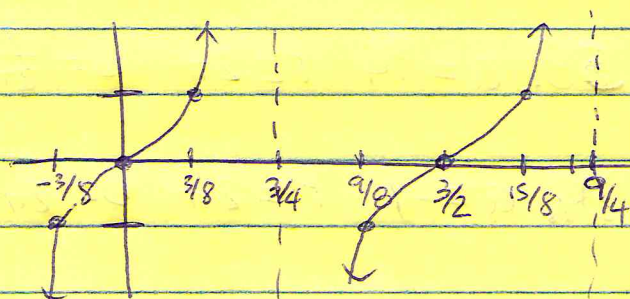
16.  $y = \tan 2\theta$   $P = \pi/2$

| $\theta$ | $y$       |
|----------|-----------|
| 0        | 0         |
| $\pi/4$  | undefined |
| $\pi/2$  | 0         |
| $3\pi/4$ | undefined |
| $\pi$    | 0         |



17.  $y = \tan \frac{2\pi}{3}\theta$   $P = \frac{\pi}{2\pi/3} = \pi \cdot \frac{3}{2\pi} = \frac{3\pi}{2} = \frac{3}{2}$

| $\theta$ | 0 | $3/4$     | $3/2$ | $9/4$     | 3 |
|----------|---|-----------|-------|-----------|---|
| $y$      | 0 | undefined | 0     | undefined | 0 |



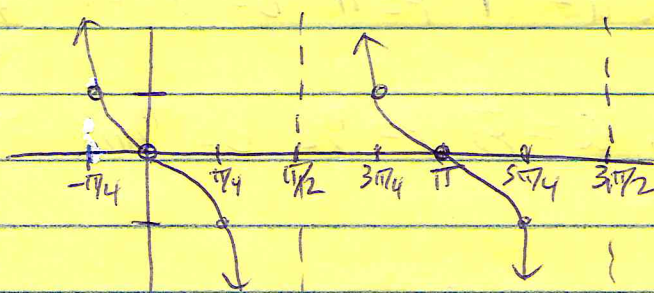
18.  $y = \tan (-\theta)$

$P = \pi$

Reflects over  
x-axis, so

graphs backward

| $\theta$ | $y$       |
|----------|-----------|
| 0        | 0         |
| $\pi/2$  | undefined |
| $\pi$    | 0         |
| $3\pi/2$ | undefined |
| $2\pi$   | 0         |



Conclusion

$-\tan \theta = \tan (-\theta)$