Answer Sheet- Precalculus Summer Review Name Key

1. a) $(1,-4)$ b) $(-1,4)$
c) $(-1,-4)$

2. a) $(2,3)$ b) $(-2,-3)$
c) $(-2,3)$

3. $y=1$
$y=3$

4. $y-3=2(x-2)$
$y=2x-1$

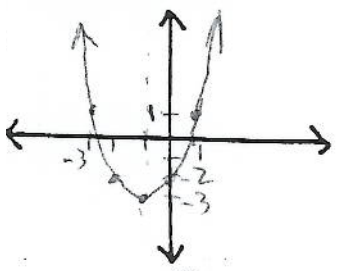
5. $x=1$

6. $y-2=-\frac{1}{2}(x+1)$
$-\frac{1}{2}x-\frac{1}{2}+2$
$y=-\frac{1}{2}x+\frac{3}{2}$

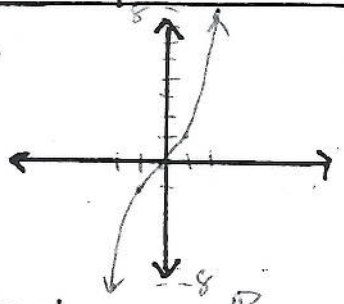
$y=3$

8A. $y=2x+2$
$y=2(x-6)$
$y=2x-12$

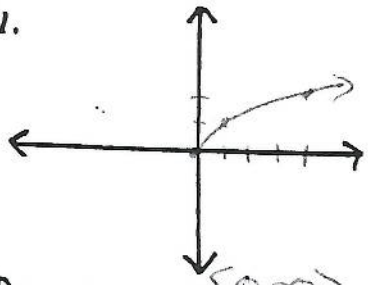
8B. $y=-\frac{1}{2}(x-6)$
$y=-\frac{1}{2}x+3$



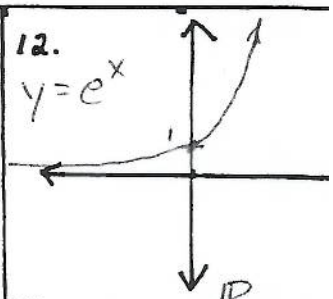
omain $\mathbb{R}$
Range $[-3,\infty)$

10.


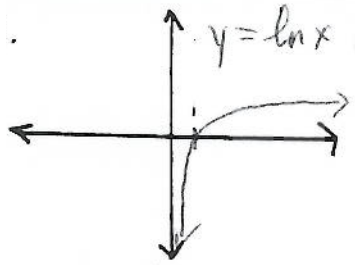
Domain $\mathbb{R}$
Range $\mathbb{R}$

11.


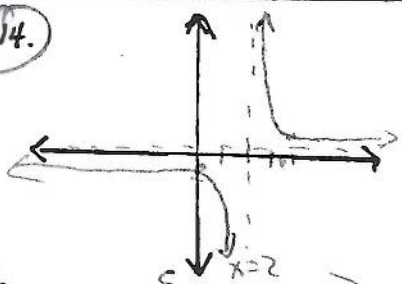
Domain $[0,\infty)$
Range $[0,\infty)$

12. $y=e^x$


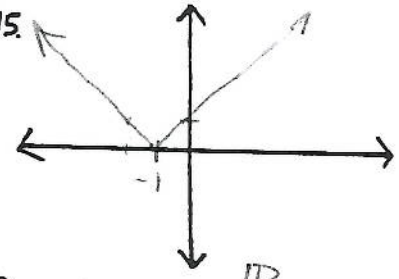
Domain $\mathbb{R}$
Range $(0,\infty)$

$y=\ln x$


omain $(0,\infty)$
Range $\mathbb{R}$

14.


Domain $\{x: x\neq 2\}$
Range $y: y\neq 0$

15.


Domain $\mathbb{R}$
Range $[0,\infty)$

16A.
Domain of f $\mathbb{R}$ Domain of g $\mathbb{R}$
Range of f. $\mathbb{R}$ Range of g. $[-4,\infty)$

16B. $f+g$ x^2+x-3
f^{-1} $y=x-1$
f/g $(x+1)/(x^2-4)$

$9x=108$ $12-y=97$
$x=12$ $-85=y$

$x=y+97$
$8(y+97)+y=11$
$9y=-765$ $y=-85$

18. $x+1=x+6-2\sqrt{x+6}+1$
$3=\sqrt{x+6}$
$9=x+6$
$3=x$

19. $2^{3(2x+3)}=2^2\cdot 2^{x+1}$
$6x+9=x+3$
$5x=-6$
$x=-\frac{6}{5}$

20. $\left(\frac{x+1}{3x-6}\right)=\left(\frac{5x}{6}+\frac{1}{x-2}\right)^{6(x-2)}$

$3(x-2)$ $2\cdot3$

$2(x+1)=5x(x-2)+6$

$2x+2=5x^2-10x+16$

$0=5x^2-12x+4$

$0=(5x-2)(x-2)$

$x=2/5, \cancel{2}$

21. $3x^2+3x=0$

$3x(x+1)=0$

$x=0,-1$

22. $2x^2-3x-7=0$

$\frac{3\pm\sqrt{9-4(2)(-7)}}{4}=\frac{3\pm\sqrt{65}}{4}$

23. $(x-5)^2=9$

$x-5=\pm3$

$x=8,2$

24. $x^2-4x+4=12+4$

$(x-2)^2=16$

$x-2=\pm4$

$x=6,-2$

25. $\frac{3y+2}{3y-2}$

26. $\frac{3-\sqrt{2}}{2\sqrt{3}+5}\cdot\frac{(2\sqrt{3}-5)}{(2\sqrt{3}-5)}=\frac{6\sqrt{3}-15-2\sqrt{6}+5\sqrt{2}}{12-25}$

$\frac{6\sqrt{3}-2\sqrt{6}+5\sqrt{2}-15}{-13}$

27. $4i\cdot13i=52i^2=-52$

28. 3

29. $625^{\frac{3}{4}}=5^3=125$

30. $-2^{15}x^2y^4$

$-32768x^2y^4$

31. $x=10$

$y=10\sqrt{2}$

32. $x=12\sqrt{3}$

$y=12$

33. $4x(x^2-1)$

$4x(x+1)(x-1)$

34. $(2x+3)(4x-5)$

35. $(7-5x)(7+5x)$

36. $(x+8)(x+7)$

37. $\sqrt{(-6-2)^2+(-2-4)^2}$

$\sqrt{64+36}=10$

Length = 10

Midpoint = $(-2,1)$

38.

$\angle2$ 143° $\angle6$ 37°

$\angle3$ 37° $\angle7$ 37°

$\angle4$ 143° $\angle8$ 143°

$\angle5$ 143°

39. $x(x+2)(x-3)(x-4)$

$(x^2+2x)(x^2-7x+12)$

$x^4-7x^3+12x^2$

$2x^3-14x^2+24x$

$x^4-5x^3-2x^2+24x$

40. a. 180°

b. $1:1:\sqrt{2}$

c. $1:\sqrt{3}:2$

d. longest side

e. shortest side

f. equal