1. D	16. C
2. B	17. A
3. C	18. B
4. B	19. C
5. C	20. D
6. A	21. B
7. B	22. C
8. B	23. A
9. B	24. B
10.D	25. C
11. A	26. A
12. C	27. B
13. C	28. D
14. A	29. D
15. B	30. D

1. D. $\frac{x-1}{3}=30$ at x=91.
2. B. g(3)=1 and so g(1)= $\sqrt{2}-1$
3. C. x-2=3 at x=5, and 4-x=3 at x=1. |5-1|=4.
4. B. This is a right triangle with legs x. So $A=\frac{1}{2}x\bullet x=20, x^2=40$ and $x=2\sqrt{10}$.
5. C. Since the vertex is at x=1, there is symmetry around x=1, and f(x+1) must equal f(1-x).
6. A. $\frac{3\cdot 3^4}{3^3}=3^2=9$
7. B. First, x cannot be -1 for the domain of g.Next we have f(x) cannot be 3, so that we avoid the zero in the denominator of f. This gives $\frac{x+3}{2x+2}\neq 3$ which gives x not equal to-0.6. The product is 0.6.
8. B. choice i is fine, since it is the def. of an even function. ii cannot be true since it gives h(4)=2 and h(4) is also -2, so h is not a function. k gives k(-3)=0 which is fine.
9. B. log120=log $(1\cdot 2\cdot 3\cdot 4\cdot 5)$, so n=5.
10. D. $\frac{4\pi r^2}{r}=\pi r^2$ solves to r=4, so x=4.
11. A. $1-x^2=(1-x^2)+2x$ -2. This solves to x=1.
12. C. f and g are inverses, and so (r, s) on f will match to (s, r) on f. So a=3 and d=1. a+d=4.
13. C. $f(1/4)=1/2, f(1/2)=2$.
14. A. The graph must pass through the origin. Consider f(x)=mx+b for the 1st property listed. b=0. So f(x)=mx. If f(1)=2 then f=2x. 2x=12, x=6.
15. B. C(3,3)=1, C(4,3)=4, C(5,3)=10, so k must be 4.
16. C. $k^2-2(1)+1=12, k^2=13$ and so $k^2-9=13-9=4$.
17. A. This is an equilateral triangle of side length 10.
18. B. The vertex of the parabola is at x= -b/2a which gives x= 2/(-2) or x= -1. At this x value, y=10.
19. C. The inverse, $x=y^2$ has two values of x for all y>0. It fails the vertical line test.
20. D. When x=1, a+4+b+c=6, so a+b+c=2.
21. B. g is raised 1 unit from f, so that we have the area of f added to a rectangle of dimensions 2 by 1 right above the x-axis.
22. C. The corner is at x=1 so we have f equal to $a|x-1|+c$ and at x=1, y=-4 so c= -4. At y=0, x=2, so a=4. For $f(x)=4|x-1|-4$, f(3)=4.
23. A. P(300)=25,as the increase is 100 out of 400. 25%.
24. B. At $x=10^{100}$, the sum if very close to the sum to infinity of a geometric series. $\frac{a_1}{1-r}=\frac{1}{1-1/3}$ =1.5.
25. C. $\frac{2+i}{-i}=1-2i$ and the abs. value of this is $\sqrt{1+4}$.
26. A. Using the triangle inequality, the third side must be between 10+12 and 12-10.
27. B. Let the vertex be (0,200). So $y-200=a(x-0)^2$, and using (200,0) we get a= $-200/200^2$ =-1/200 Using this and finding y for x=10 we get 199.5

28. D. $2 = \sqrt{x-2}$ solves to 6.
29. D. $27^{k/3} = 3^{k/2} \cdot 3^{1/2}$ so $k/3 = k/2 + 1/2$ solves to k=1. And g(1,2)=9.
30. D. f(x)= $\frac{1}{(x-1)} + \frac{1}{(x-1)+1} = \frac{1}{x-1} + \frac{1}{x}$ which equals $\frac{2x-1}{x(x-1)}$. If the domain is integers, then the denominator must be the product of consecutive integers. All fit this description, but in D we see 30=6(5) so x=6 and the numerator must be 2(6)-1=11. So choice D cannot be in the range of f.