1. $\frac{3}{3+19}$
2. Mode= 4 and 24
   Median= 7
   sample standard deviation= 7.843078
   Mean=11.42
   population standard deviation= 7.76428
   population variance =60.28351
3. this is a conditional probability question.
   we know the results of three questions (2 correct and one incorrect)
   n= $12-3=9$ so only 9 questions that are unknown.
   p $=0.25$
   r(number of successes) $=6-2=4$

   probability: $\text{bpdf}(9, 0.25, 4) = .116798$
4. Think about the distribution on a number line. remember slow times are bigger numbers so they are on the right side of the number line.

0.15	0.2	0.30	0.35
super fast	very fast	fast	slow

   the slowest time and still be in the very fast group is the break between very fast and fast.

   $\text{invnorm}(0.15 + 0.2, 19, 3.5) = 17.65$ minutes.
5. (a) $\sqrt{npq} = \sqrt{42 * 0.4 * 0.6}$
   (b) 20 failures is the same as 22 successes.
   $\text{bpdf}(42, 0.4, 22) = 0.3305$
   or
   $\text{bpdf}(42, 0.6, 20) = 0.3305$
   (c) $\text{bcdf}(42, 0.4, 24) - \text{bcdf}(42, 0.4, 12) = .90581$
6. solve $25 + 2.5k = 28.5$ and get $k = 1.4$.

   prob $\geq 1 - \dfrac{1}{(1.4)^2} = 0.489795$
7. (a) 300*ncdf$(43, 1E99, 40, 5) = 300 * .27425 = 82.27859$
   (b) 0, since the random variable is continuous.
   (c) p= ncdf(37,47,40,5) $= 0.645$
   $\text{bcdf}(50, 0.645, 34) = 0.74415$
8. Let A be the amount of the grand prize.

X	$0-5=-5$	$A-5$	$4-5=-1$
prob.	$\frac{2}{12} * \frac{2}{12} = \frac{1}{36}$	$\frac{10}{12} * \frac{10}{12} = \frac{25}{36}$	$1 - \frac{1}{36} - \frac{25}{36} = \frac{10}{36}$

   Now solve for $E(X) = -2$ and you get $A = 68$ dollars.
9. N=52, I= 14, PV= solve, Pmt=0, Fv= 400, P/y =C/y= 52

   Answer: $347.81

Check the back of the page for more problems.

10. N= 12, I= 5 , PV=−6000, Pmt= 400, Fv= solve, P/y =C/y= 4

    Answer: 1820.38

11. step 1 find the payment.

    N=40 , I=7.4 , PV= 38500, Pmt=solve , Fv= 0, P/y =C/y=4

    payment = 1370.64

    Interest owed $= 3850 * \frac{0.74}{4} = 712.25$ done like the amortization charts.

    Answer: $1370.64 - 712.25 = 658.39$

12. balance at end of 3rd year (n=12) - balance at start of third year(n=8) - any payments made in third year.

    Ballance(n=12): 3803.86

    Ballance(n=8): 2813.06

    payments made(in yr 3): 4*200 = 800

    Answer:$3803.86 - 2813.06 - 800 = 190.80$

13. interest owed is $1400 - 1000 = 400$.

    I = Prt gives $400 = 1000r * 7$

    solving for r gives $r = 0.05714$

    Answer: 5.714%

14. First figure out the present value of each loan(what you owe.)

    Loan 1: N=24, I= 7, PV= solve, Pmt=-300, Fv= 0, P/y =C/y= 4: still oew: 5838.21

    Loan 2: N=144, I= 3, PV= solve, Pmt=-400, Fv= 0, P/y =C/y= 12: still owe: 48321.63

    New loan: N= 8*12, I= 5 , PV= 54159.84, Pmt= solve, Fv=0 , P/y =C/y= 12

    Answer: 685.66

15. first figure out how much needs to be in the account when Gabriel retires.

    N= 15*12, I= 5, PV= solve, Pmt= 4000, Fv= 0, P/y =C/y= 12: needs 505820.97

    now figure out the payments needed to save up for this amount.

    N= 40*12, I= 5 , PV= 0 Pmt= solve , Fv=505820.97 , P/y =C/y= 12

    Answer: 331.46

16. (a) N= 12*30, I= 4 , PV= 150000, Pmt= solve, Fv= 0, P/y =C/y= 12
    Answer:716.12

    (b) N= 5*12, I= 4 , PV= 150000, Pmt= -716.12, Fv= solve, P/y =C/y=12
    after 5 years he still owes 135671.46
    new value is 200000+1200*5 = 206,000
    Answer: 206,000 - 135,674.46 = 70,328.54

    (c) N= 10*12, I= 4 , PV= 150000, Pmt= -716.12, Fv= solve, P/y =C/y=12
    after 10 years he still owes 118176.37
    new loan is for 118,176.37 + 7000 = 125,176.37
    N= 18*12, I= 3 , PV= 125176.37, Pmt= solve, Fv= 0, P/y =C/y= 12
    new loan payment is 750.71

Check the back of the page for more problems.

paid on new loan: 750.71*12*18 = 162153.36
paid on remaining old loan: 716.12*12*20 = 171868.80
will save 171868.80-162153.36 = 9715.44
so yes he should refinance.