1. $\boxed{E}$. It is not important to find out the actual prime numbers. For any two digits prime, the unit digit must be 1, 3, 7 and 9 while the tens digit must be 2, 4, 5, and 6. Thus, the sum is $(2+4+5+6)\times 10+(1+3+7+9)=\boxed{190}$.

2. $\boxed{B}$. We factor $p=n^2-3n+2=(n-1)(n-2)$. For p be a prime number, either $(n-1)$ or $(n-2)$ must be 1. If $n-1=1$ we have $n=2$ and $p=0$ which is not a prime. If $n-2=1$ we have $n=3$ and $p=2$. So, there is one prime.

3. $\boxed{D}$. Let $k^2=\dfrac{n}{20-n}$. Solve for n, we have $n=\dfrac{20k^2}{1+k^2}$. We also have the condition of $0\le n<20$, which restricts k to 4 values: 0, 1, 2, and 3.

4. $\boxed{A}$. $7\times 3\times 73=1533$. The sum of the digit is $\boxed{12}$.

5. $\boxed{E}$. In the first round, there are 36 games played. Of the 64 remaining players, only the winner did not lose a game. Since there are 63 players lost, there must have 63 games played. Therefore, the total number of games played is 99, which is divisible by 11.

6. $\boxed{E}$. We first prime factorize

$$3!\cdot 5!\cdot 7!=3\cdot 2\cdot 5\cdot 2^2\cdot 3\cdot 2\cdot 7\cdot 2\cdot 3\cdot 2^2\cdot 3\cdot 2=2^8\cdot 3^4\cdot 5\cdot 7=(2^2\cdot 3)^3\cdot 2\cdot 3\cdot 5\cdot 7,$$

which means we have $3\times 2=6$ factors.

7. $\boxed{A}$. There are three primes from 1 to 6. The probability of rolling a prime is then $\frac{1}{2}$. To roll twelve dice, we have $(\frac{1}{2})^2 12$.

8. $\boxed{C}$. $1+2+\cdots+n=\frac{(n+1)n}{2}$. Thus, we want $\dfrac{2n!}{n(n+1)}=\dfrac{2(n-1)!}{n+1}$ be an integer. It implies that $n+1$ must either be a 2 or a composite number. There are 8 prime numbers larger than 2 from 1 to 24. Therefore, we have 24 - 8 = $\boxed{16}$ positive integers.

9. $\boxed{D}$. We factor $75m=n^3=3\cdot 5^2$. For a perfect square, we need $3^2\cdot 5=45$. Thus, $m=45$ and $n=15$. $m+n=60$.

10. $\boxed{E}$. We have $m^2-n^2=96$. Since m and n are positive integers, we can factor 96 into product of two integers. Since $96=2^5\cdot 3$, it has 12 factors. Therefore, we have 12 pairs.