1) Solve: $18-(4x+1)<2(3x-1)+4x$ Write solution using interval notation.

A $\left(-\infty,-\frac{19}{14}\right)$

B $\left(\frac{3}{2},\infty\right)$

C $\left(-\infty,\frac{2}{3}\right)$

D $\left(\frac{7}{2},\infty\right)$

E $\left(\frac{19}{14},\infty\right)$

2) Which statement is true about the solution(s) of $|2x-13|=9$?

A There is one solution, it is negative.
B There are two solutions, both positive.
C There are two solutions, one positive and one negative.
D There is one solution, it is positive.
E There are two solutions, both negative.

3) Solve: $|4x-1|+2\le 11$

A $x\le\frac{5}{2}$

B $-3\le x\le\frac{5}{2}$

C $-2\le x\le\frac{5}{2}$

D $x\le -2$ or $x\ge\frac{5}{2}$

E $x\le -3$ or $x\ge\frac{5}{2}$

4) Combine (add/subtract): $(4x+7y)-(2y-12x)+(8x-y)$

A $8x+6y$
B $4y$
C $10x+18y$
D $24x+4y$
E None of the above.

5) Which product is **false**?

A $(x+3y)(x-3y)=2x-9y^2$
B $(a+2b)(3a-b)=3a^2+5ab-2b^2$
C $(3m+2)^2=9m^2+12m+4$
D $\left(g+\frac{1}{2}\right)(2g+4)=2g^2+5g+2$
E $3rs(4r^2s+2rs-6s^2)=12r^3s^2+6r^2s^2-18rs^3$

6) Which choice is one factor of $a^2-6a+2ab-12b$?

A $a+6$
B $a+2b$
C $a-3$
D $a-b$
E $a+4b$

7) Which trinomial is prime (cannot be factored)?

A x^2+x-6
B x^2-5x+6
C x^2+7x+6
D $x^2+7x-10$
E $x^2+3x-10$

8) One factor of $12x^2+8x-15$ is which?

A $6x+5$
B $2x-3$
C $12x+5$
D $2x+3$
E $3x-5$

9) Factor the polynomial **completely**. Examine choices carefully.

$$7ax^4-112a$$

A $7a(x^2-4)^2$
B $7a(x^2+4)(x+2)(x-2)$
C $7a(x+2)^2(x-2)^2$
D $7a(x^2+2)(x+2)(x-2)$
E $7a(x-2)^4$

10) Given $f(x)=6x^2+x$ and $g(x)=3-2x$, find all values of x such that $f(x)=g(x)$.

A $x=-1,\frac{1}{2}$
B $x=-1,1$
C $x=-\frac{1}{6},0,\frac{3}{2}$
D $x=-\frac{1}{2},1$
E $x=-\frac{1}{2},1,3$

11) Multiply: $\dfrac{5x-20}{4x} \bullet \dfrac{x^3}{10x^2-160}$

A $\dfrac{x^2}{4(x+4)}$

B $\dfrac{x^2(x-1)}{2(x+4)(x-4)}$

C $\dfrac{x^2}{8(x+4)}$

D $\dfrac{x}{40}$

E $\dfrac{x^2}{8(x-4)}$

12) List all restrictions on the domain of this expression. (List what values of x would be excluded.)

$$\frac{5}{x^4+5x^3+6x^2}$$

A $-3, -2, 0, 5$ only

B $-3, -2$ only

C $0, 2, 3$ only

D $2, 3$ only

E $-3, -2, 0$ only

13) Under the Trustworthy medical insurance plan, Kim would pay the first \$1500 of her medicals bills and 25% of all **remaining** bills for the year. Under the Wellness medical insurance plan, she would pay the first \$1200 of her medicals bills and 30% of all **remaining** bills for the year. (Assume that her bills will exceed \$1500.) Let b represent the total medical bills for Kim for a year. Which inequality could be used the find the amount of medical bills Kim would have in a year if the Trustworthy plan is more economical?

A $1500+0.25b<1200+0.3b$

B $1500+0.25(b-1500)<1200+0.3(b-1500)$

C $1500+0.25(b-1500)<1200+0.3(b-1200)$

D $1500+0.25(b-1200)<1200+0.3(b-1200)$

E None of the above.

14) Two cars leave the local community college parking lot at the **same time** and travel in opposite directions. One car travels at an average speed of 50 miles per hour and the other travels at an average speed of 45 miles per hour. In how many hours will they be 285 miles apart? (Assume neither car stops and they continue to travel in opposite directions.) Which statement below would describe this number of hours?

	Distance	Rate	Time
Car 1		50	x
Car 2		45	x

A Between 1.4 and 1.8 hours
B Between 1.8 and 2.2 hours
C Between 2.2 and 2.8 hours
D Between 2.8 and 3.2 hours
E Between 3.2 and 3.5 hours

15) A picture frame measures 10 inches by 13 inches and 70 square inches of picture shows through the frame, which is of uniform width. (See the picture.) If x represents the width of the frame, which **simplified equation** could be used to find x?

A $2x^2 - 33x + 60 = 0$
B $2x^2 - 3x + 30 = 0$
C $2x^2 - 23x + 30 = 0$
D $x^2 - 23x + 100 = 0$
E $2x^2 - 23x + 120 = 0$