$$\frac{5a^2-4}{4}+\frac{a+3}{5}=5$$

$$\frac{5a^2-4}{4}+\frac{a+3}{5}-5=0$$

$$-5+\frac{5a^2-4}{4}+\frac{a+3}{5}=0$$

$$-5+\frac{\left(5a^2-4\right)5}{4\cdot 5}+\frac{(a+3)4}{5\cdot 4}=0$$

$$-5+\frac{\left(5a^2-4\right)5+(a+3)4}{20}=0$$

$$-5+\frac{\left(25a^2-20\right)+(4a+12)}{20}=0$$

$$-5+\frac{25a^2-20+4a+12}{20}=0$$

$$-5+\frac{25a^2-8+4a}{20}=0$$

$$-\frac{5\cdot 20}{20}+\frac{25a^2-8+4a}{20}=0$$

$$\frac{-5\cdot 20+\left(25a^2-8+4a\right)}{20}=0$$

$$\frac{-100+\left(25a^2-8+4a\right)}{20}=0$$

$$\frac{-100+25a^2-8+4a}{20}=0$$

$$\frac{-108+25a^2+4a}{20}=0$$

$$\frac{25a^2+4a-108}{20}=0$$

Дробь обращается в нуль тогда, когда числитель равен нулю.

$$25a^2+4a-108=0$$

Находим дискриминант.

$$D=b^2-4ac=4^2-4\cdot 25(-108)=10816$$

$$a_{1,2}=\frac{-b\pm\sqrt{D}}{2a}$$

$$a_1=\frac{-4-104}{2*25}=-\frac{54}{25}$$

$$a_2=\frac{-4+104}{2\cdot 25}=2$$

ответ: $a=-\frac{54}{25};2$

$$\frac{5}{2x^2-x-3}+\frac{1}{x+1}=\frac{5}{(2x-3)(x+1)}+\frac{1}{x+1}=\frac{5}{(2x-3)(x+1)}+\frac{2x-3}{(x+1)(2x-3)}=\frac{5+(2x-3)}{(2x-3)(x+1)}=$$

$$=\frac{5+2x-3}{(2x-3)(x+1)}=\frac{2x+2}{(2x-3)(x+1)}=\frac{2(x+1)}{(2x-3)(x+1)}=\frac{2}{2x-3}$$