$$\int \frac{1}{(3-2x)^{41/2}\left(1+x+2x^2\right)^{20}}\,dx = \frac{x}{133(3-2x)^{39/2}\left(1+x+2x^2\right)^{19}} + \frac{\int \frac{3640-3164x}{(3-2x)^{41/2}\left(1+x+2x^2\right)^{19}}\,dx}{3724}$$

$$= \frac{x}{133(3-2x)^{39/2}\left(1+x+2x^2\right)^{19}} + \frac{113+373x}{33516(3-2x)^{39/2}\left(1+x+2x^2\right)^{1}}$$

$$= \frac{x}{133(3-2x)^{39/2}\left(1+x+2x^2\right)^{19}} + \frac{113+373x}{33516(3-2x)^{39/2}\left(1+x+2x^2\right)^{1}}$$

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$$= \frac{x}{\quad} + \frac{113+373x}{\quad}$$