```
CoefficientList[Series[1 / (Log[1 - x]), {x, 0, 20}] + 1 / x, x]
```

$$\left\{\frac{1}{2}, \frac{1}{12}, \frac{1}{24}, \frac{19}{720}, \frac{3}{160}, \frac{863}{60\,480}, \frac{275}{24\,192}, \frac{33\,953}{3\,628\,800}, \frac{8183}{1\,036\,800}, \frac{3\,250\,433}{479\,001\,600}, \frac{4671}{788\,480}, \frac{13\,695\,779\,093}{2\,615\,348\,736\,000}, \frac{2\,224\,234\,463}{475\,517\,952\,000}, \frac{132\,282\,840\,127}{31\,384\,184\,832\,000}, \frac{2\,639\,651\,053}{689\,762\,304\,000}, \frac{111\,956\,703\,448\,001}{32\,011\,868\,528\,640\,000}, \frac{50\,188\,465}{15\,613\,165\,568}, \frac{2\,334\,028\,946\,344\,463}{786\,014\,494\,949\,376\,000}, \frac{301\,124\,035\,185\,049}{109\,285\,437\,800\,448\,000}, \frac{12\,365\,722\,323\,469\,980\,029}{4\,817\,145\,976\,189\,747\,200\,000}, \frac{8\,519\,318\,716\,801\,273\,673}{3\,549\,475\,982\,455\,603\,200\,000}\right\}$$

```
InverseSeries[ CoefficientList[ Series[1 / (Log[1 - x]), {x, 0, 20}] + 1 / x, x], {x, 1, 30}]
```

$$\text{InverseSeries}\left[\left\{\frac{1}{2}, \frac{1}{12}, \frac{1}{24}, \frac{19}{720}, \frac{3}{160}, \frac{863}{60\,480}, \frac{275}{24\,192}, \frac{33\,953}{3\,628\,800}, \frac{8183}{1\,036\,800}, \frac{3\,250\,433}{479\,001\,600}, \frac{4671}{788\,480}, \frac{13\,695\,779\,093}{2\,615\,348\,736\,000}, \frac{2\,224\,234\,463}{475\,517\,952\,000}, \frac{132\,282\,840\,127}{31\,384\,184\,832\,000}, \frac{2\,639\,651\,053}{689\,762\,304\,000}, \frac{111\,956\,703\,448\,001}{32\,011\,868\,528\,640\,000}, \frac{50\,188\,465}{15\,613\,165\,568}, \frac{2\,334\,028\,946\,344\,463}{786\,014\,494\,949\,376\,000}, \frac{301\,124\,035\,185\,049}{109\,285\,437\,800\,448\,000}, \frac{12\,365\,722\,323\,469\,980\,029}{4\,817\,145\,976\,189\,747\,200\,000}, \frac{8\,519\,318\,716\,801\,273\,673}{3\,549\,475\,982\,455\,603\,200\,000}\right\}, \{x, 1, 30\}\right]$$

```
InverseSeries[Series[x Sin[x], {x, 0, 10}]]
```

$$\sqrt{x} + \frac{x^{3/2}}{12} + \frac{29\,x^{5/2}}{1440} + \frac{263\,x^{7/2}}{40\,320} + \frac{23\,479\,x^{9/2}}{9\,676\,800} + O[x]^5$$

```
Series[x Sin[x], {x, 0, 10}]
```

$$x^2 - \frac{x^4}{6} + \frac{x^6}{120} - \frac{x^8}{5040} + \frac{x^{10}}{362\,880} + O[x]^{11}$$

```
Series[1 / (Log[1 - x]), {x, 0, 40}] + 1 / x
```

$$\frac{1}{2}+\frac{x}{12}+\frac{x^2}{24}+\frac{19\,x^3}{720}+\frac{3\,x^4}{160}+\frac{863\,x^5}{60\,480}+\frac{275\,x^6}{24\,192}+\frac{33\,953\,x^7}{3\,628\,800}+\frac{8183\,x^8}{1\,036\,800}+\frac{3\,250\,433\,x^9}{479\,001\,600}+$$
$$\frac{4671\,x^{10}}{788\,480}+\frac{13\,695\,779\,093\,x^{11}}{2\,615\,348\,736\,000}+\frac{2\,224\,234\,463\,x^{12}}{475\,517\,952\,000}+\frac{132\,282\,840\,127\,x^{13}}{31\,384\,184\,832\,000}+\frac{2\,639\,651\,053\,x^{14}}{689\,762\,304\,000}+$$
$$\frac{111\,956\,703\,448\,001\,x^{15}}{32\,011\,868\,528\,640\,000}+\frac{50\,188\,465\,x^{16}}{15\,613\,165\,568}+\frac{2\,334\,028\,946\,344\,463\,x^{17}}{786\,014\,494\,949\,376\,000}+\frac{301\,124\,035\,185\,049\,x^{18}}{109\,285\,437\,800\,448\,000}+$$
$$\frac{12\,365\,722\,323\,469\,980\,029\,x^{19}}{4\,817\,145\,976\,189\,747\,200\,000}+\frac{8\,519\,318\,716\,801\,273\,673\,x^{20}}{3\,549\,475\,982\,455\,603\,200\,000}+\frac{1\,232\,577\,428\,602\,510\,264\,423\,x^{21}}{547\,454\,472\,117\,564\,211\,200\,000}+$$
$$\frac{530\,916\,160\,966\,849\,x^{22}}{250\,639\,102\,771\,200\,000}+\frac{101\,543\,126\,947\,618\,093\,900\,697\,699\,x^{23}}{50\,814\,724\,101\,952\,310\,083\,584\,000\,000}+\frac{439\,498\,633\,365\,840\,119\,748\,791\,x^{24}}{232\,561\,666\,370\,491\,121\,664\,000\,000}+$$
$$\frac{64\,252\,172\,543\,850\,268\,483\,123\,097\,x^{25}}{35\,869\,217\,013\,142\,807\,117\,824\,000\,000}+\frac{928\,685\,729\,779\,901\,399\,375\,x^{26}}{545\,814\,099\,444\,746\,491\,527\,168}+$$
$$\frac{1\,718\,089\,509\,598\,695\,642\,524\,656\,240\,811\,x^{27}}{1\,061\,011\,439\,248\,764\,234\,545\,233\,920\,000\,000}+\frac{5\,150\,046\,951\,561\,533\,494\,311\,x^{28}}{3\,335\,806\,532\,892\,753\,920\,000\,000}+$$
$$\frac{44\,810\,233\,755\,305\,010\,150\,728\,029\,810\,063\,187\,x^{29}}{30\,391\,611\,665\,841\,602\,734\,313\,680\,404\,480\,000\,000}+\frac{591\,196\,628\,282\,358\,511\,073\,053\,919\,767\,459\,x^{30}}{419\,194\,643\,666\,780\,727\,369\,843\,867\,648\,000\,000}+$$
$$\frac{41\,879\,192\,008\,416\,382\,946\,708\,306\,724\,524\,546\,989\,x^{31}}{30\,999\,443\,899\,158\,434\,788\,999\,954\,012\,569\,600\,000\,000}+$$
$$\frac{2\,591\,732\,418\,410\,529\,996\,582\,054\,516\,791\,114\,419\,x^{32}}{1\,999\,964\,122\,526\,350\,631\,548\,384\,129\,843\,200\,000\,000}+$$
$$\frac{463\,005\,016\,262\,358\,027\,646\,662\,419\,618\,511\,917\,831\,x^{33}}{371\,993\,326\,789\,901\,217\,467\,999\,448\,150\,835\,200\,000\,000}+\frac{8\,228\,101\,012\,669\,004\,096\,202\,109\,493\,x^{34}}{6\,874\,491\,856\,759\,219\,342\,540\,800\,000\,000}+$$
$$\frac{1\,645\,304\,068\,233\,045\,635\,570\,103\,155\,501\,936\,410\,743\,238\,637\,x^{35}}{1\,427\,851\,745\,683\,821\,035\,104\,819\,721\,793\,202\,814\,976\,000\,000\,000}+$$
$$\frac{13\,801\,609\,725\,699\,893\,914\,072\,918\,474\,893\,017\,x^{36}}{12\,427\,816\,535\,459\,143\,213\,689\,324\,984\,625\,790\,976}+$$
$$\frac{524\,499\,877\,683\,882\,012\,195\,483\,088\,981\,269\,289\,370\,802\,701\,x^{37}}{489\,549\,169\,948\,738\,640\,607\,366\,761\,757\,669\,536\,563\,200\,000\,000}+$$
$$\frac{1\,440\,963\,742\,834\,711\,309\,215\,801\,879\,066\,442\,793\,988\,659\,x^{38}}{1\,392\,743\,015\,501\,390\,158\,200\,189\,933\,876\,726\,988\,800\,000\,000}+$$
$$\frac{66\,237\,865\,863\,583\,761\,552\,496\,336\,459\,238\,862\,072\,867\,316\,322\,221\,x^{39}}{66\,236\,002\,694\,064\,338\,074\,176\,722\,865\,812\,688\,297\,000\,960\,000\,000\,000}+$$
$$\frac{580\,759\,987\,170\,964\,013\,548\,436\,485\,342\,702\,493\,053\,x^{40}}{600\,312\,232\,571\,648\,312\,815\,546\,678\,640\,640\,000\,000\,000}+0[x]^{41}$$

```
InverseSeries[Series[x / (Log[1 - x]), {x, 0, 40}]]
```

$$2\,(x+1)-\frac{2}{3}\,(x+1)^2-\frac{2}{9}\,(x+1)^3-\frac{14}{135}\,(x+1)^4-\frac{22}{405}\,(x+1)^5-\frac{82\,(x+1)^6}{2835}-$$
$$\frac{86\,(x+1)^7}{6075}-\frac{622\,(x+1)^8}{127\,575}+\frac{1438\,(x+1)^9}{1\,148\,175}+\frac{1\,025\,966\,(x+1)^{10}}{189\,448\,875}+\frac{32\,909\,314\,(x+1)^{11}}{3\,978\,426\,375}+$$
$$\frac{1\,584\,376\,606\,(x+1)^{12}}{155\,158\,628\,625}+\frac{1\,068\,478\,318\,(x+1)^{13}}{93\,095\,177\,175}+\frac{3\,415\,445\,666\,(x+1)^{14}}{279\,285\,531\,525}+$$
$$\frac{87\,807\,997\,126\,(x+1)^{15}}{6\,982\,138\,288\,125}+\frac{52\,325\,133\,235\,058\,(x+1)^{16}}{4\,154\,372\,281\,434\,375}+\frac{153\,840\,284\,803\,882\,(x+1)^{17}}{12\,463\,116\,844\,303\,125}+$$
$$\frac{25\,287\,193\,065\,300\,454\,(x+1)^{18}}{2\,131\,192\,980\,375\,834\,375}+\frac{302\,824\,885\,986\,829\,586\,(x+1)^{19}}{27\,049\,757\,058\,616\,359\,375}+$$
$$\frac{1\,561\,645\,742\,653\,601\,698\,(x+1)^{20}}{150\,705\,789\,326\,576\,859\,375}+\frac{41\,612\,173\,663\,180\,114\,034\,(x+1)^{21}}{4\,430\,750\,206\,201\,359\,665\,625}+$$
$$\frac{1\,154\,218\,869\,205\,113\,382\,574\,(x+1)^{22}}{138\,964\,438\,285\,406\,280\,421\,875}+\frac{424\,780\,254\,158\,782\,058\,356\,082\,(x+1)^{23}}{59\,615\,744\,024\,439\,294\,300\,984\,375}+$$
$$\frac{361\,099\,231\,547\,794\,428\,866\,(x+1)^{24}}{61\,522\,955\,649\,576\,155\,109\,375}+\frac{20\,372\,893\,897\,363\,197\,691\,467\,706\,(x+1)^{25}}{4\,471\,180\,801\,832\,947\,072\,573\,828\,125}+$$
$$\frac{3\,306\,670\,407\,912\,023\,755\,239\,614\,(x+1)^{26}}{1\,031\,810\,954\,269\,141\,632\,132\,421\,875}+\frac{39\,020\,917\,761\,508\,618\,181\,483\,702\,(x+1)^{27}}{21\,303\,861\,467\,556\,983\,110\,498\,828\,125}+$$
$$\frac{1\,102\,726\,950\,704\,673\,673\,612\,948\,139\,042\,(x+1)^{28}}{2\,426\,147\,655\,509\,791\,907\,572\,938\,043\,359\,375}-\frac{6\,620\,518\,546\,776\,235\,182\,965\,335\,987\,814\,(x+1)^{29}}{7\,278\,442\,966\,529\,375\,722\,718\,814\,130\,078\,125}-$$
$$\frac{690\,434\,149\,588\,420\,919\,995\,333\,712\,837\,258\,(x+1)^{30}}{307\,679\,634\,494\,196\,337\,369\,477\,142\,771\,484\,375}-$$
$$\frac{3\,048\,508\,606\,648\,784\,308\,585\,999\,269\,257\,703\,686\,(x+1)^{31}}{863\,041\,374\,756\,220\,726\,321\,383\,385\,474\,013\,671\,875}-$$
$$\frac{535\,666\,528\,447\,849\,434\,700\,257\,194\,370\,456\,638\,(x+1)^{32}}{112\,570\,614\,098\,637\,486\,041\,919\,572\,018\,349\,609\,375}-$$
$$\frac{90\,499\,854\,378\,739\,562\,837\,637\,727\,882\,102\,462\,(x+1)^{33}}{15\,320\,261\,090\,347\,113\,484\,994\,971\,339\,775\,390\,625}-$$
$$\frac{502\,256\,380\,640\,581\,634\,572\,030\,383\,384\,588\,436\,574\,(x+1)^{34}}{72\,125\,600\,604\,627\,017\,842\,572\,754\,357\,471\,142\,578\,125}-$$
$$\frac{122\,631\,760\,879\,696\,672\,852\,409\,099\,695\,668\,663\,942\,082\,(x+1)^{35}}{15\,495\,907\,883\,747\,943\,141\,100\,438\,686\,185\,915\,478\,515\,625}-$$
$$\frac{4\,106\,267\,278\,074\,567\,858\,854\,198\,185\,965\,460\,656\,073\,174\,382\,(x+1)^{36}}{469\,572\,496\,601\,213\,921\,004\,766\,593\,507\,491\,796\,745\,458\,984\,375}-$$
$$\frac{731\,739\,236\,841\,034\,306\,503\,644\,175\,410\,042\,218\,591\,565\,617\,882\,(x+1)^{37}}{77\,479\,461\,939\,200\,296\,965\,786\,487\,928\,736\,146\,463\,000\,732\,421\,875}-$$
$$\frac{2\,324\,825\,776\,657\,911\,423\,126\,209\,944\,765\,201\,017\,243\,205\,108\,022\,(x+1)^{38}}{232\,438\,385\,817\,600\,890\,897\,359\,463\,786\,208\,439\,389\,002\,197\,265\,625}-$$
$$\frac{2\,103\,088\,697\,605\,403\,472\,174\,506\,697\,144\,804\,618\,029\,188\,994\,(x+1)^{39}}{202\,061\,766\,865\,489\,038\,740\,098\,056\,029\,737\,849\,367\,431\,640\,625}-$$
$$\left(913\,895\,514\,850\,592\,514\,731\,625\,404\,812\,025\,955\,252\,090\,170\,336\,978\,(x+1)^{40}\right)\Big/$$
$$85\,769\,764\,366\,694\,728\,741\,125\,642\,137\,110\,914\,134\,541\,810\,791\,015\,625+O[x+1]^{41}$$

```
N[Series[1 / (Log[1 - x]), {x, 0, 80}] + 1 / x]
```

```
0.5 + 0.0833333 (x + 0.) + 0.0416667 (x + 0.)^2 + 0.0263889 (x + 0.)^3 + 0.01875 (x + 0.)^4 +
 0.0142692 (x + 0.)^5 + 0.0113674 (x + 0.)^6 + 0.00935654 (x + 0.)^7 + 0.00789255 (x + 0.)^8 +
 0.00678585 (x + 0.)^9 + 0.00592406 (x + 0.)^10 + 0.00523669 (x + 0.)^11 + 0.0046775 (x + 0.)^12 +
 0.00421495 (x + 0.)^13 + 0.0038269 (x + 0.)^14 + 0.00349735 (x + 0.)^15 + 0.0032145 (x + 0.)^16 +
 0.00296945 (x + 0.)^17 + 0.00275539 (x + 0.)^18 + 0.00256702 (x + 0.)^19 + 0.00240016 (x + 0.)^20 +
 0.00225147 (x + 0.)^21 + 0.00211825 (x + 0.)^22 + 0.0019983 (x + 0.)^23 + 0.00188982 (x + 0.)^24 +
 0.00179129 (x + 0.)^25 + 0.00170147 (x + 0.)^26 + 0.00161929 (x + 0.)^27 + 0.00154387 (x + 0.)^28 +
 0.00147443 (x + 0.)^29 + 0.00141032 (x + 0.)^30 + 0.00135097 (x + 0.)^31 + 0.00129589 (x + 0.)^32 +
 0.00124466 (x + 0.)^33 + 0.0011969 (x + 0.)^34 + 0.00115229 (x + 0.)^35 + 0.00111054 (x + 0.)^36 +
 0.00107139 (x + 0.)^37 + 0.00103462 (x + 0.)^38 + 0.00100003 (x + 0.)^39 + 0.00096743 (x + 0.)^40 +
 0.000936667 (x + 0.)^41 + 0.000907596 (x + 0.)^42 + 0.000880086 (x + 0.)^43 +
 0.00085402 (x + 0.)^44 + 0.000829291 (x + 0.)^45 + 0.000805805 (x + 0.)^46 + 0.000783473 (x + 0.)^47 +
 0.000762216 (x + 0.)^48 + 0.000741961 (x + 0.)^49 + 0.000722642 (x + 0.)^50 +
 0.000704198 (x + 0.)^51 + 0.000686574 (x + 0.)^52 + 0.000669718 (x + 0.)^53 +
 0.000653584 (x + 0.)^54 + 0.000638127 (x + 0.)^55 + 0.000623308 (x + 0.)^56 + 0.00060909 (x + 0.)^57 +
 0.000595439 (x + 0.)^58 + 0.000582322 (x + 0.)^59 + 0.00056971 (x + 0.)^60 + 0.000557576 (x + 0.)^61 +
 0.000545894 (x + 0.)^62 + 0.00053464 (x + 0.)^63 + 0.000523793 (x + 0.)^64 + 0.000513331 (x + 0.)^65 +
 0.000503236 (x + 0.)^66 + 0.000493489 (x + 0.)^67 + 0.000484073 (x + 0.)^68 + 0.000474972 (x + 0.)^69 +
 0.000466171 (x + 0.)^70 + 0.000457657 (x + 0.)^71 + 0.000449416 (x + 0.)^72 + 0.000441436 (x + 0.)^73 +
 0.000433704 (x + 0.)^74 + 0.000426211 (x + 0.)^75 + 0.000418946 (x + 0.)^76 + 0.000411898 (x + 0.)^77 +
 0.000405059 (x + 0.)^78 + 0.00039842 (x + 0.)^79 + 0.000391973 (x + 0.)^80 + O[x + 0.]^81
```

```
N[InverseSeries[Series[x / (Log[1 - x]), {x, 0, 80}]]]
```

```
2. (x + 1.) - 0.666667 (x + 1.)^2 - 0.222222 (x + 1.)^3 - 0.103704 (x + 1.)^4 - 0.054321 (x + 1.)^5 -
 0.0289242 (x + 1.)^6 - 0.0141564 (x + 1.)^7 - 0.00487556 (x + 1.)^8 + 0.00125242 (x + 1.)^9 +
 0.00541553 (x + 1.)^10 + 0.00827194 (x + 1.)^11 + 0.0102113 (x + 1.)^12 + 0.0114773 (x + 1.)^13 +
 0.0122292 (x + 1.)^14 + 0.0125761 (x + 1.)^15 + 0.0125952 (x + 1.)^16 + 0.0123436 (x + 1.)^17 +
 0.0118653 (x + 1.)^18 + 0.0111951 (x + 1.)^19 + 0.0103622 (x + 1.)^20 + 0.00939168 (x + 1.)^21 +
 0.00830586 (x + 1.)^22 + 0.0071253 (x + 1.)^23 + 0.00586934 (x + 1.)^24 + 0.00455649 (x + 1.)^25 +
 0.00320473 (x + 1.)^26 + 0.00183164 (x + 1.)^27 + 0.000454518 (x + 1.)^28 - 0.000909606 (x + 1.)^29 -
 0.002244 (x + 1.)^30 - 0.00353229 (x + 1.)^31 - 0.00475849 (x + 1.)^32 - 0.0059072 (x + 1.)^33 -
 0.00696364 (x + 1.)^34 - 0.00791382 (x + 1.)^35 - 0.00874469 (x + 1.)^36 - 0.0094443 (x + 1.)^37 -
 0.0100019 (x + 1.)^38 - 0.0104081 (x + 1.)^39 - 0.0106552 (x + 1.)^40 - 0.010737 (x + 1.)^41 -
 0.010649 (x + 1.)^42 - 0.010389 (x + 1.)^43 - 0.00995641 (x + 1.)^44 - 0.00935301 (x + 1.)^45 -
 0.00858266 (x + 1.)^46 - 0.00765143 (x + 1.)^47 - 0.00656767 (x + 1.)^48 - 0.00534192 (x + 1.)^49 -
 0.00398695 (x + 1.)^50 - 0.00251765 (x + 1.)^51 - 0.000950987 (x + 1.)^52 + 0.000694179 (x + 1.)^53 +
 0.00239719 (x + 1.)^54 + 0.0041358 (x + 1.)^55 + 0.00588638 (x + 1.)^56 + 0.00762415 (x + 1.)^57 +
 0.00932346 (x + 1.)^58 + 0.0109581 (x + 1.)^59 + 0.0125015 (x + 1.)^60 + 0.0139274 (x + 1.)^61 +
 0.0152096 (x + 1.)^62 + 0.0163229 (x + 1.)^63 + 0.0172434 (x + 1.)^64 + 0.0179485 (x + 1.)^65 +
 0.0184176 (x + 1.)^66 + 0.0186325 (x + 1.)^67 + 0.0185775 (x + 1.)^68 + 0.0182402 (x + 1.)^69 +
 0.0176112 (x + 1.)^70 + 0.016685 (x + 1.)^71 + 0.0154599 (x + 1.)^72 + 0.0139385 (x + 1.)^73 +
 0.0121275 (x + 1.)^74 + 0.0100384 (x + 1.)^75 + 0.00768681 (x + 1.)^76 + 0.00509336 (x + 1.)^77 +
 0.00228298 (x + 1.)^78 - 0.000714872 (x + 1.)^79 - 0.00386648 (x + 1.)^80 + O[x + 1.]^81
```