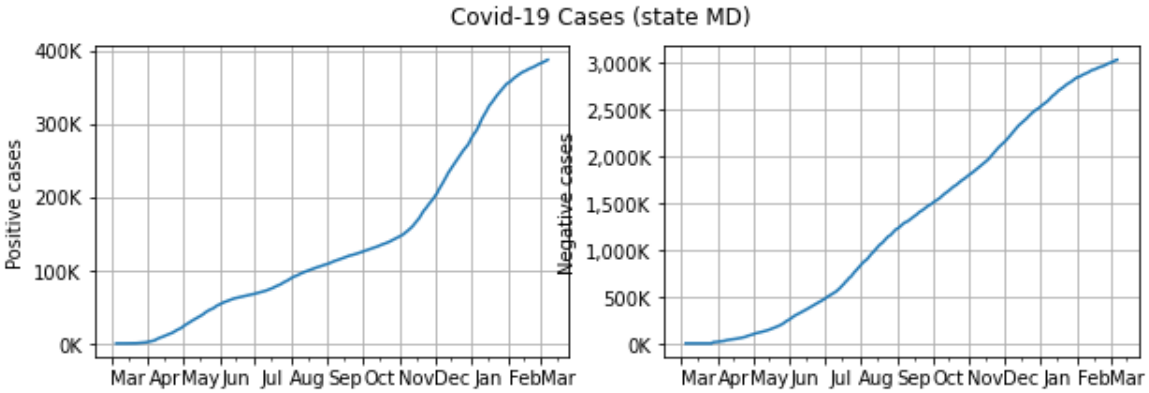
```
    dfs = _df[_df['state']==_st].copy()

    _ax.xaxis.set_major_locator(mdates.MonthLocator())
    _ax.xaxis.set_minor_locator(mdates.MonthLocator(bymonthday=15))
    _ax.xaxis.set_major_formatter(NullFormatter())
    _ax.xaxis.set_minor_formatter(mdates.DateFormatter('%b'))
    if max(dfs[_col]) > 5000:
        _ax.yaxis.set_major_formatter(FuncFormatter(lambda y, pos: '{:,d}

    _ax.plot(dfs['date'], dfs[_col])

    _ax.set_ylabel(_ylabel)
    _ax.grid(True)
    plt.setp(_ax.get_xticklabels(), rotation=90, fontsize=8)


# Plot
STATE = 'MD'
fig, axs = plt.subplots(1, 2, figsize=(10, 3), sharey=False, dpi=72)
plot_state(axs[0], df, STATE, 'positive', 'Positive cases')
plot_state(axs[1], df, STATE, 'negative', 'Negative cases')
fig.suptitle(f'Covid-19 Cases (state {STATE})')

plt.show()
```



Question 10: The plot is increasing because the cases are cumulative in the dataset. Which math operator do we need to apply to get daily cases?

In [16]:

```
# Preprocess daily cases
def pp(_y):
    dy = np.zeros(_y.shape, dtype=np.int32)
    dy[0:-1] = np.diff(_y)
    return dy


dfs = df[df['state']==STATE].reset_index()
dfs['pos'] = pp(dfs.sort_values(by='date')['positive'])
dfs['neg'] = pp(dfs.sort_values(by='date')['negative'])

dfs.head()
```