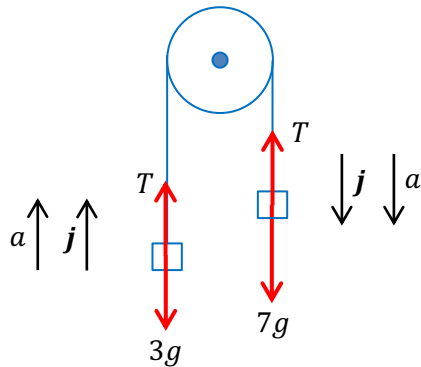


## Sample solutions to the 2018 VCAA NHT papers

### Question 1 (Specialist Mathematics Examination 1)

a.



b. 7 kg mass:  $7g - T = 7a$  : [1]

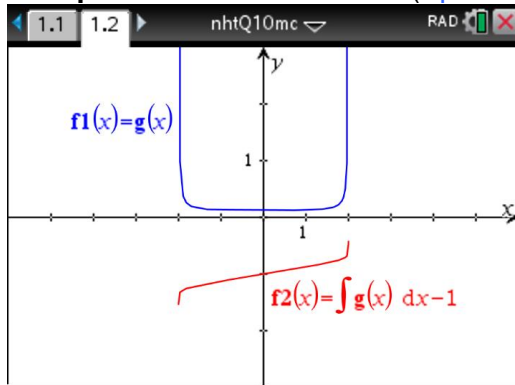
3kg mass  $T - 3g = 3a$  : [2]

[1] + [2]:  $4g = 10a$

$$a = \frac{2g}{5} \text{ m/s}^2$$

From [2]:  $T = 3\left(\frac{2g}{5}\right) + 3g = \frac{6g}{5} + \frac{15g}{5} = \frac{21g}{5}$  newtons

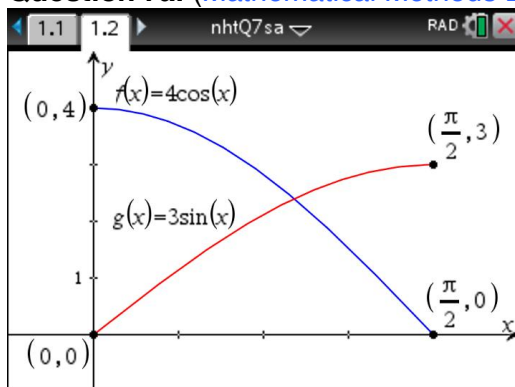
### Multiple-Choice Question 10 (Specialist Mathematics Examination 2)



Option E is a possible derivative graph of the provided antiderivative curve.

E

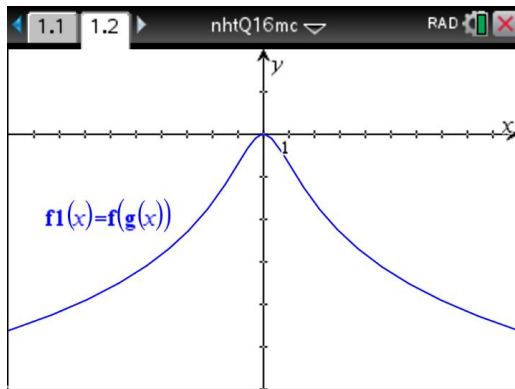
### Question 7a. (Mathematical Methods Examination 1)



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## Multiple-Choice Question 16 (Mathematical Methods Examination 2)



E

## Multiple-Choice Question 9 in Data Analysis (Further Mathematics Examination 1)

I	J	K	L
=		=TwoVar(	
10	$\Sigma y^2$	4680.82	
11	$s_y := s_{n-1}$	2.80529...	
12	$\sigma_y := \sigma_{n-1}$	2.68586...	
13	$\Sigma xy$	13056.06	
14	r	-0.1242...	
K14	=-0.12422288250197		

B

## Extended-Response Question 1 in Data Analysis (Further Mathematics Examination 2)

### Question 1

a. 30.8 mm

b.  $IQR = 31.6 - 30.3 = 1.3$

Upper fence =  $Q_3 + 1.5IQR = 31.6 + 1.5 \times 1.3 = 33.55$

As  $33.5 < 33.55$ , 33.5 is not an outlier

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