

```

In[1]:= n = 10; (*number of questions needed*)
generate[n_] := Module[{QAVCmin, QMCmin, QATCmin},
  SeedRandom[n];
  k = RandomInteger[{1, 5}];
  δ = RandomInteger[{1, 10}];
  γ = -6 * δ * k;
  β = RandomInteger[{ $\frac{\gamma^2}{3 \delta}$ ,  $\frac{k * \gamma^2}{3 \delta}$ };
  QAVCmin = -γ / (2 δ);
  QMCmin = -γ / (3 δ);
  QATCmin = RandomInteger[{QAVCmin + 1, 2 * QAVCmin}];
  α = γ * QATCmin2 + 2 δ * QATCmin3;

  Print["Question ", i];
  Print["Cost function is TC(Q)=", α + β * Q + γ * Q2 + δ * Q3];
  Print["QminAVC=", QAVCmin];
  Print["QminMC=", QMCmin];
  Print["QminATC=", QATCmin];
  Print[Plot[(α + β * Q + γ * Q2 + δ * Q3), {Q, 1, QATCmin + 1}]];
  {}
];

```

```
Table[generate[i], {i, 1, n}] // TableForm;
```

(\*CODE ABOVE\*)

(\*\*\*\*\*)

(\*OUTPUT BELOW\*)

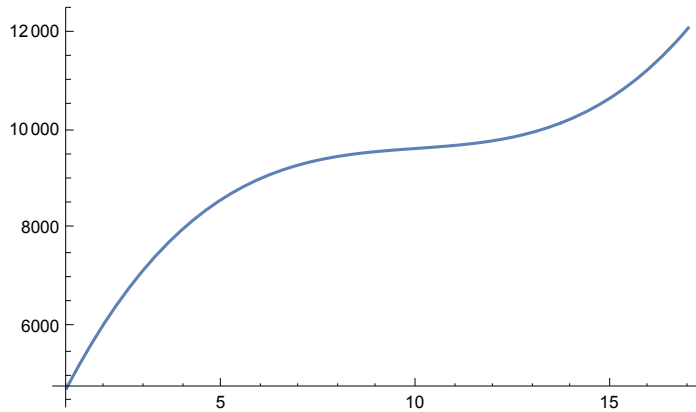
Question 1

Cost function is  $TC(Q) = 3072 + 1856Q - 180Q^2 + 6Q^3$

$Q_{min}^{AVC} = 15$

$Q_{min}^{MC} = 10$

$Q_{min}^{ATC} = 16$



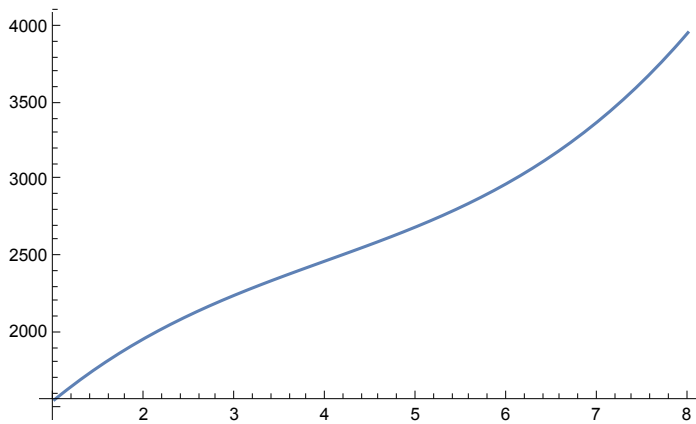
## Question 2

Cost function is  $TC(Q) = 980 + 693Q - 120Q^2 + 10Q^3$

$$Q_{\min}^{AVC} = 6$$

$$Q_{\min}^{MC} = 4$$

$$Q_{\min}^{ATC} = 7$$



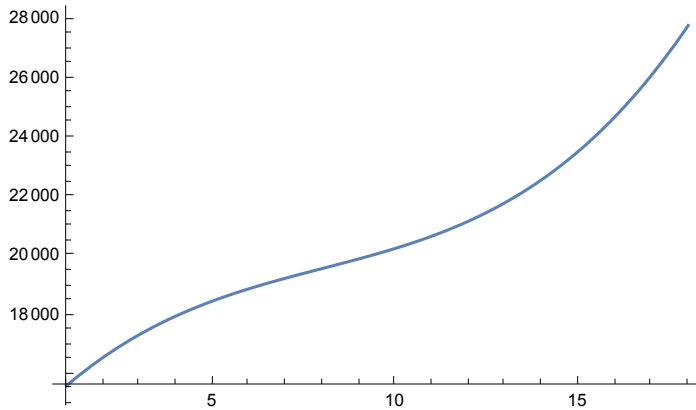
## Question 3

Cost function is  $TC(Q) = 14450 + 1280Q - 120Q^2 + 5Q^3$

$$Q_{\min}^{AVC} = 12$$

$$Q_{\min}^{MC} = 8$$

$$Q_{\min}^{ATC} = 17$$



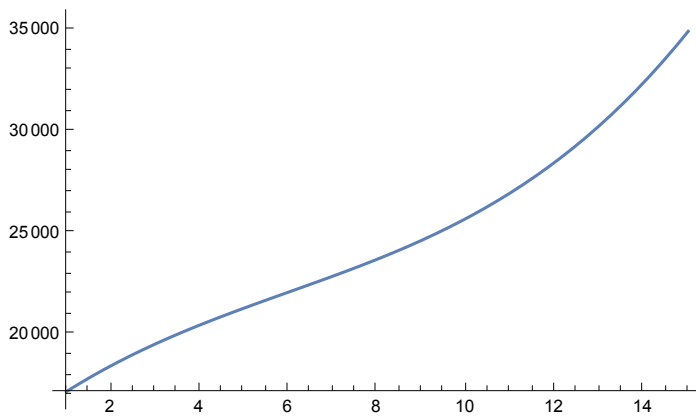
Question 4

Cost function is  $TC(Q) = 15680 + 1643Q - 144Q^2 + 8Q^3$

$$Q_{\min}^{AVC} = 9$$

$$Q_{\min}^{MC} = 6$$

$$Q_{\min}^{ATC} = 14$$



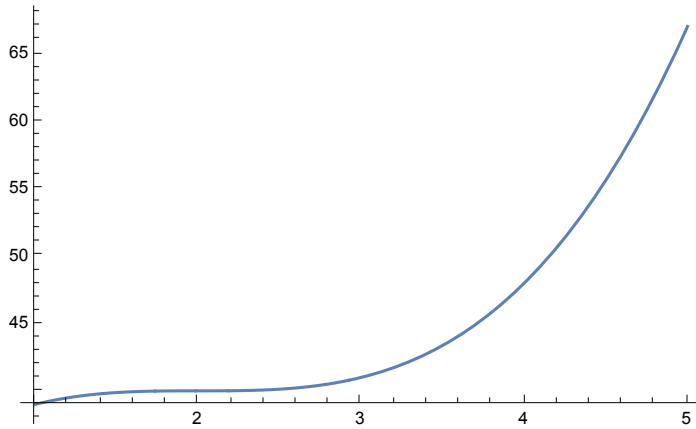
Question 5

Cost function is  $TC(Q) = 32 + 12Q - 6Q^2 + Q^3$

$$Q_{\min}^{AVC} = 3$$

$$Q_{\min}^{MC} = 2$$

$$Q_{\min}^{ATC} = 4$$



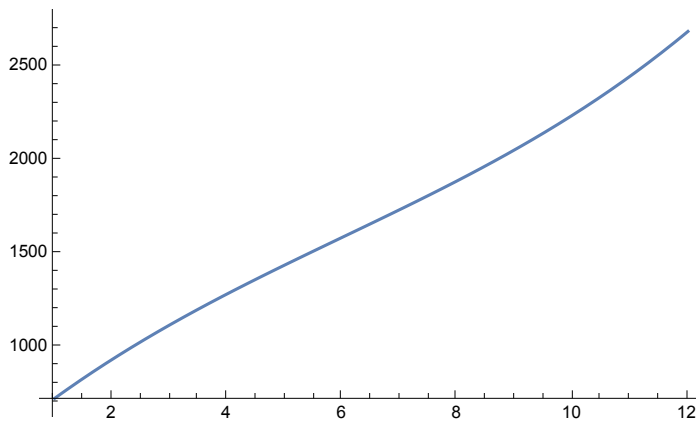
Question 6

Cost function is  $TC(Q) = 484 + 255Q - 18Q^2 + Q^3$

$$Q_{\min}^{AVC} = 9$$

$$Q_{\min}^{MC} = 6$$

$$Q_{\min}^{ATC} = 11$$



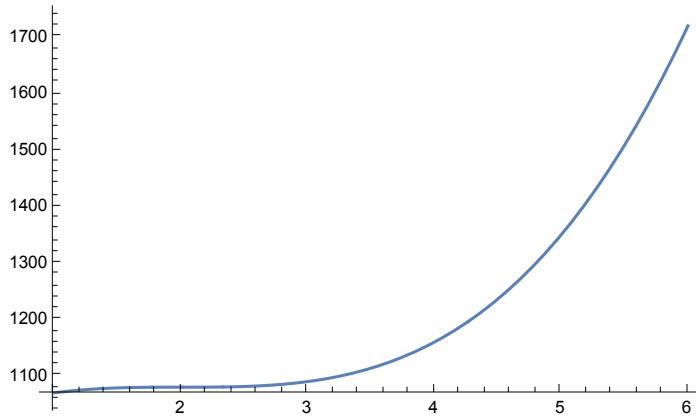
Question 7

Cost function is  $TC(Q) = 1000 + 120Q - 60Q^2 + 10Q^3$

$$Q_{\min}^{AVC} = 3$$

$$Q_{\min}^{MC} = 2$$

$$Q_{\min}^{ATC} = 5$$



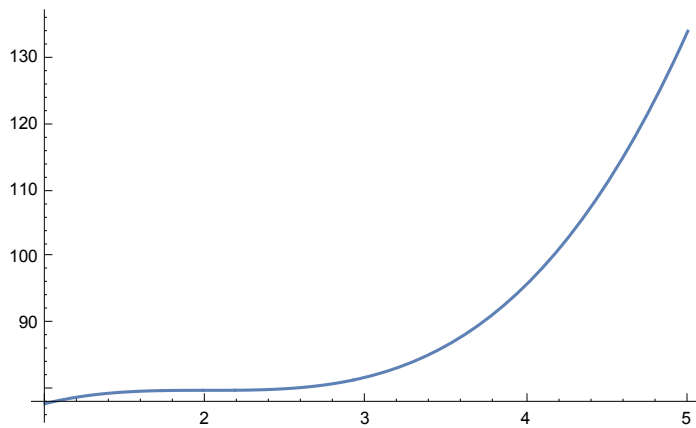
Question 8

Cost function is  $TC(Q) = 64 + 24Q - 12Q^2 + 2Q^3$

$$Q_{\min}^{AVC} = 3$$

$$Q_{\min}^{MC} = 2$$

$$Q_{\min}^{ATC} = 4$$



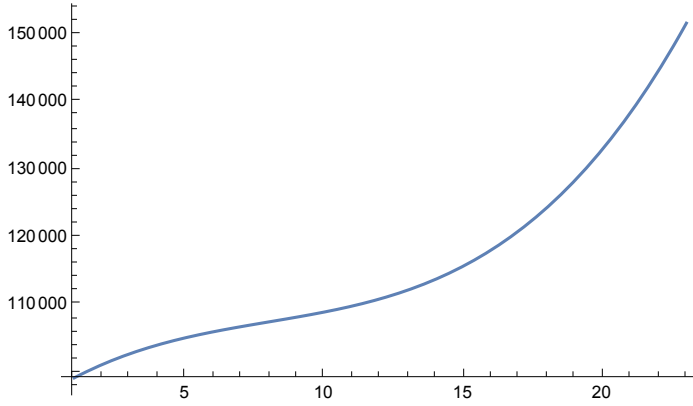
Question 9

Cost function is  $TC(Q) = 96800 + 2612Q - 240Q^2 + 10Q^3$

$$Q_{\min}^{AVC} = 12$$

$$Q_{\min}^{MC} = 8$$

$$Q_{\min}^{ATC} = 22$$



Question 10

Cost function is  $TC(Q) = 10752 + 700Q - 54Q^2 + 3Q^3$

$$Q_{\min}^{AVC} = 9$$

$$Q_{\min}^{MC} = 6$$

$$Q_{\min}^{ATC} = 16$$

