

Includes 1 BONUS Question

## Chapter 6 Test

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## Multiple Choice

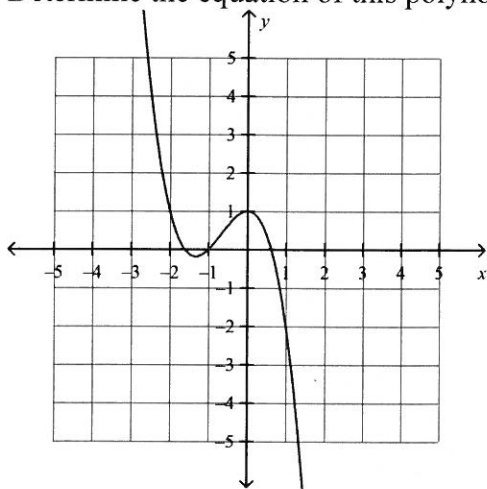
Identify the choice that best completes the statement or answers the question.

1. Determine the degree of this polynomial function:

$$f(x) = \frac{3}{4} + 2x$$

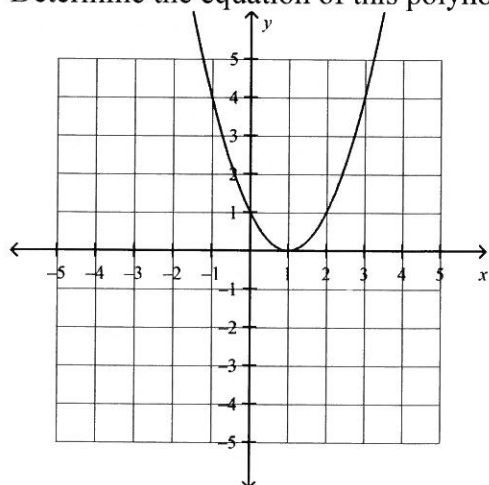
- A. 0  
B. 1  
C. 2  
D. 3

2. Determine the equation of this polynomial function:



- A.  $f(x) = -x^2 - 3x - 1$   
B.  $g(x) = x^2 - 2x + 1$   
C.  $h(x) = -x^3 - 2x^2 + 1$   
D.  $j(x) = x^3 + 2x$

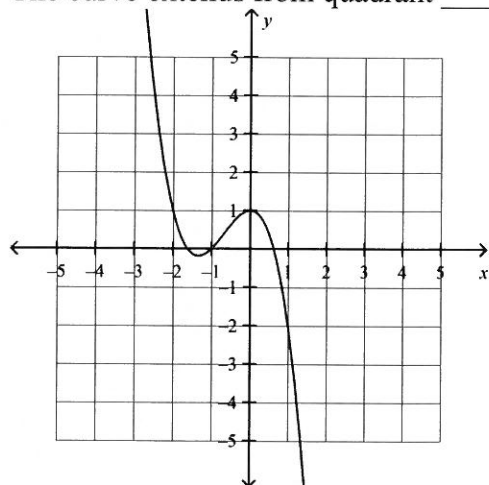
3. Determine the equation of this polynomial function:



- A.  $f(x) = -x^2 - 3x - 1$   
B.  $g(x) = x^2 - 2x + 1$   
C.  $h(x) = -x^3 - 2x^2 + 1$   
D.  $j(x) = x^3 + 2x$

4. Fill in the blanks to describe the end behaviour of this polynomial function:

The curve extends from quadrant \_\_\_\_\_ to quadrant \_\_\_\_\_.

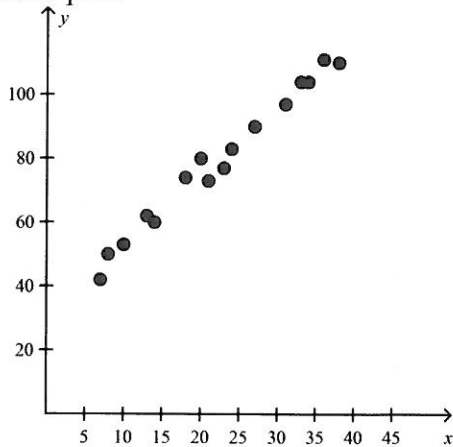


- A. II; I  
B. II; IV  
C. III; I  
D. III; IV

5. The growth of a tree can be modelled by the function  
 $h(t) = 2.3t + 0.45$   
where  $h$  represents the height in metres and  $t$  represents the time in years.  
Approximately how tall will the tree be in 8 years?  $t = 8$

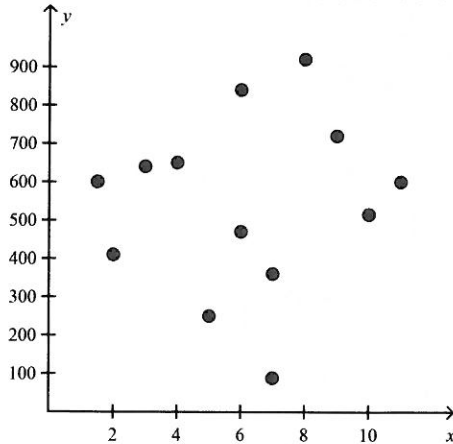
A. 18.85 m  
B. 17.15 m  
C. 19.55 m  
D. 16.75 m

6. Use a ruler to help you estimate the  $y$ -intercept for a line that best approximates the data in the scatter plot.



A. -10  
B. 10  
C. 30  
D. 50

7. Describe the characteristics of the trend in the data.



- A. increasing  
B. decreasing  
C. constant  
D. no trend

8. The average retail price of gas in Canada, from 1979 to 2008, can be modelled by the function

$$P(y) = 0.008y^3 - 0.307y^2 + 4.830y + 25.720$$

where  $P$  is the price of gas in cents per litre and  $y$  is the number of years after 1979.

Determine the average price of gas in 2002.

- A. 68.8¢/L  
B. 69.8¢/L  
C. 70.4¢/L  
D. 71.7¢/L

9. Determine the equation of the quadratic regression function for the data.

| x | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  |
|---|-----|-----|-----|-----|-----|-----|-----|-----|
| y | 156 | 135 | 128 | 123 | 134 | 147 | 170 | 203 |

- A.  $y = 4.2x^2 - 107x + 803.5$   
B.  $y = 4.2x^2 - 107x + 508.5$   
C.  $y = -4.2x^2 - 107x + 803.5$   
D.  $y = -4.2x^2 - 107x + 508.5$

10. Use quadratic regression to interpolate the value of  $y$  when  $x = 5$ .

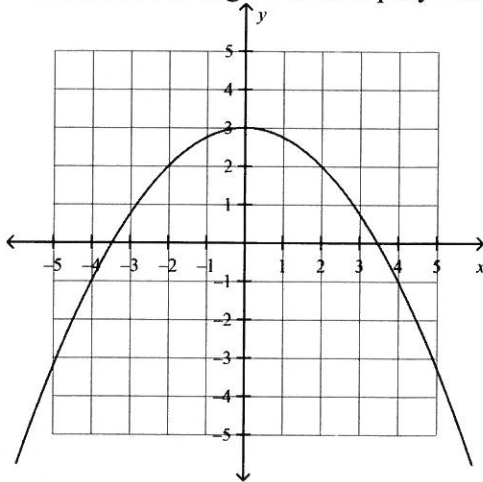
|     |      |      |      |      |      |     |      |      |
|-----|------|------|------|------|------|-----|------|------|
| $x$ | 0    | 2    | 3    | 3    | 4    | 6   | 7    | 7    |
| $y$ | 17.5 | 30.3 | 30.8 | 31.5 | 25.0 | 8.3 | -7.6 | -9.1 |

- A. 17.1  
B. 18.1  
C. 19.1  
D. 20.1

Short Answer

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1. Determine the degree of this polynomial function:



2. Determine the degree of this polynomial function:

$$f(x) = \frac{2}{5}x^2 - 5x + 1$$

3. The distance a marathon runner covers can be modelled by the function

$$d(t) = 153.8t + 86$$

where  $d$  represents the distance in metres and  $t$  represents the time in minutes.

How far has she run after 90 min, to the nearest kilometre?

$t = 90$

\* To convert meters to Kilometers, you will need to divide your answer by 1000.

Name: \_\_\_\_\_

ID: A

Problem

You do not need to graph this, but you can if you want.

1. Determine the following characteristics of the polynomial function  $f(x) = x^3 - 8x^2 - 3$ .

Show your work.

- number of possible  $x$ -intercepts
- $y$ -intercept
- end behaviour
- domain
- range
- number of possible turning points

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