

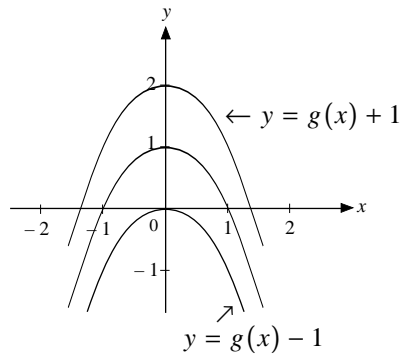
Practice Book *UNIT 17 Using Graphs*

Answers

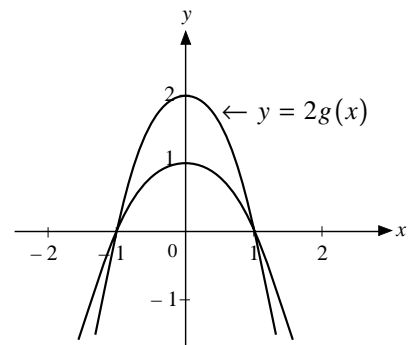
17.1 Transformations of Graphs

1. A: $y = f(x + 2)$; B: $y = f(x - 2)$; C: $y = f(x - 3)$

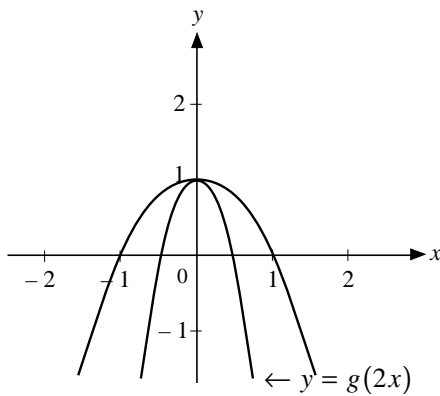
2. (a)



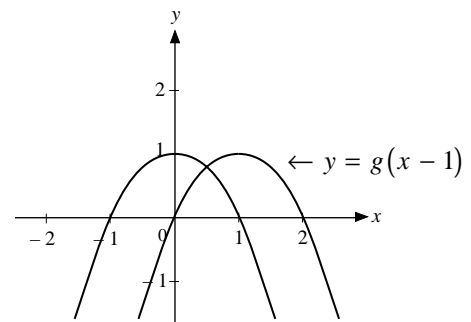
(b)



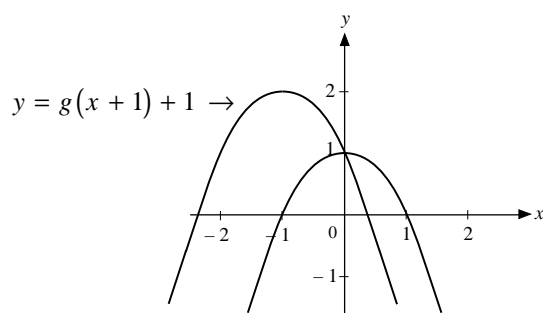
(c)



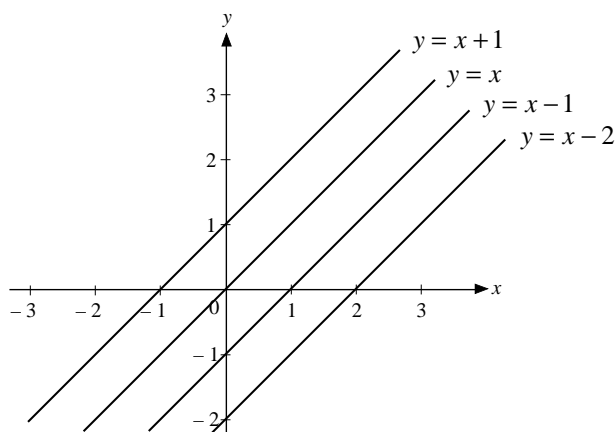
(d)



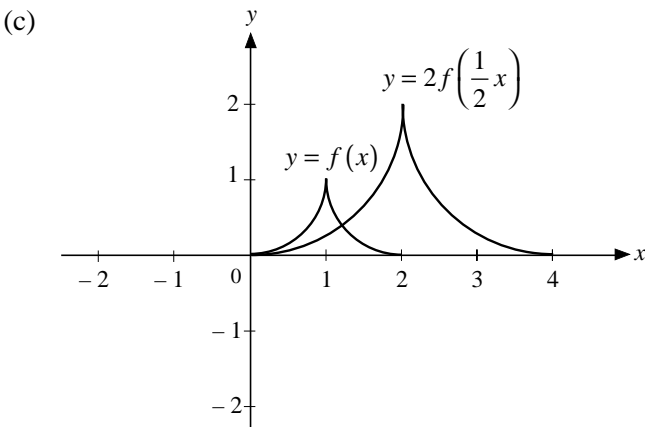
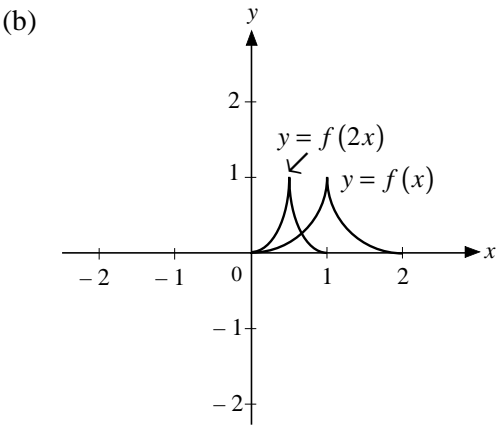
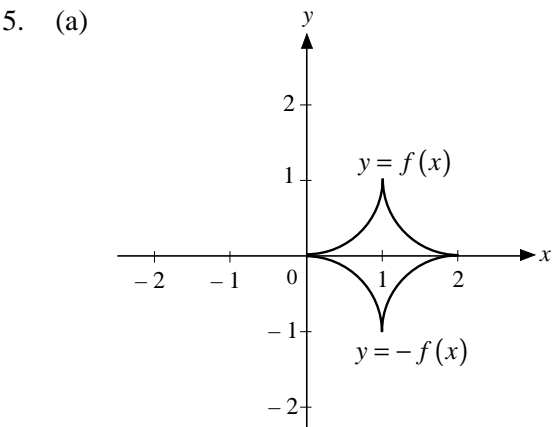
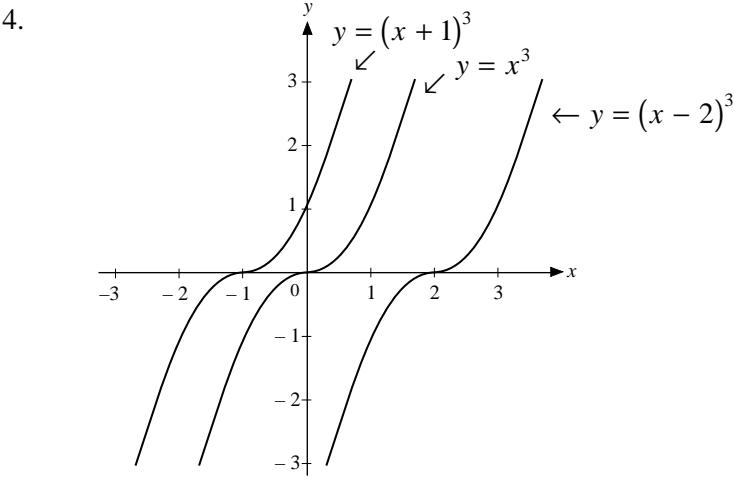
(e)



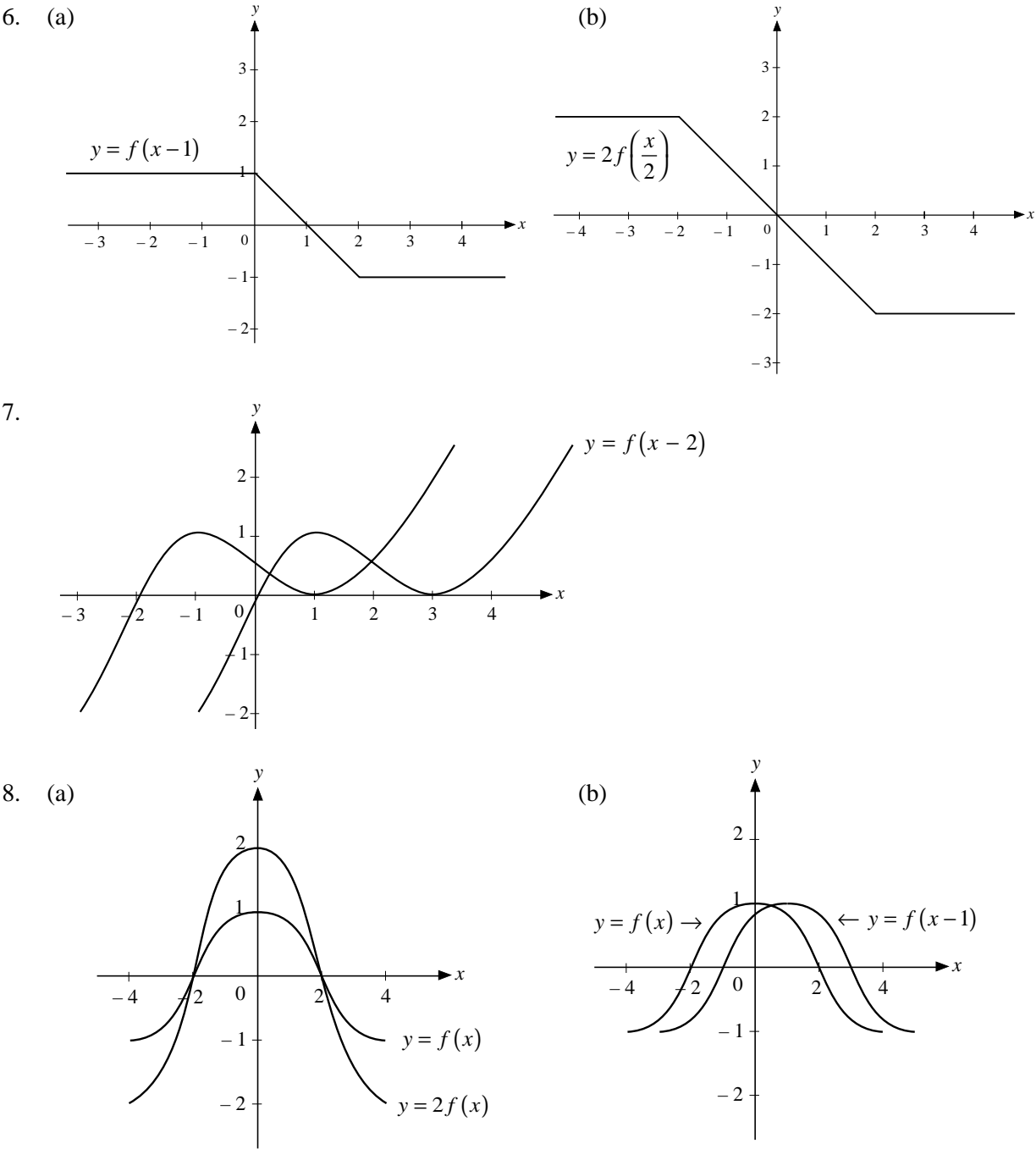
3.



Answers



Answers



7.

A graph showing two functions on a Cartesian coordinate system. The x-axis ranges from -3 to 4, and the y-axis ranges from -2 to 2. One function is a curve with x-intercepts at $x = -2$, $x = 0$, and $x = 3$, and a local maximum at $(1, 1)$. The other function is a curve with x-intercepts at $x = -1$, $x = 1$, and $x = 4$, and a local maximum at $(2, 1)$. The label $y = f(x-2)$ points to the second curve.

8. (a)

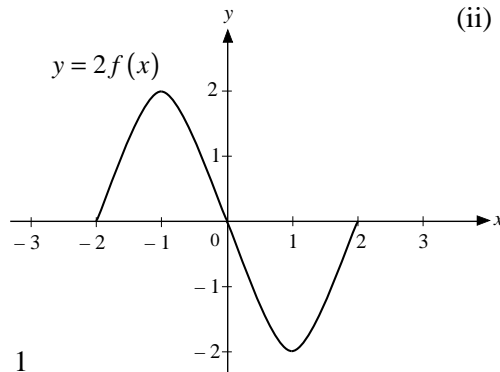
A graph showing two functions on a Cartesian coordinate system. The x-axis ranges from -4 to 4, and the y-axis ranges from -2 to 2. The function $y = f(x)$ is a bell-shaped curve with a maximum at $(0, 1)$ and x-intercepts at $x = -2$ and $x = 2$. The function $y = 2f(x)$ is a bell-shaped curve with a maximum at $(0, 2)$ and x-intercepts at $x = -2$ and $x = 2$.

(b)

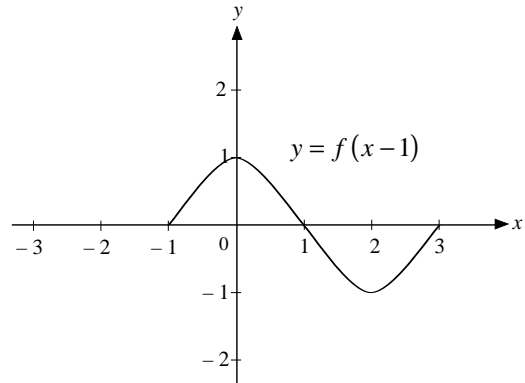
A graph showing two functions on a Cartesian coordinate system. The x-axis ranges from -4 to 4, and the y-axis ranges from -2 to 2. The function $y = f(x)$ is a bell-shaped curve with a maximum at $(0, 1)$ and x-intercepts at $x = -2$ and $x = 2$. The function $y = f(x-1)$ is a bell-shaped curve with a maximum at $(1, 1)$ and x-intercepts at $x = -1$ and $x = 3$.

Answers

9. (a) (i)

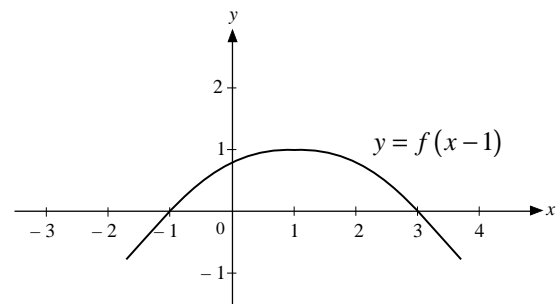
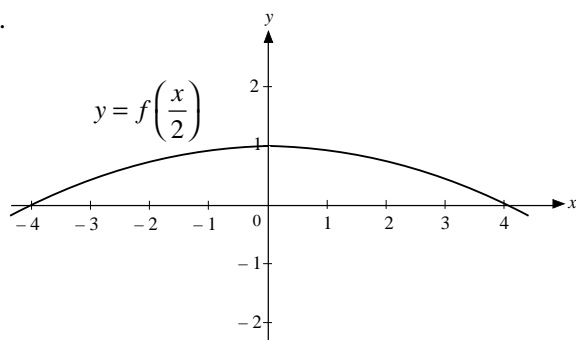


(ii)

(b) C, $\frac{1}{2}$

10. (a) 24 (c) reflection in y-axis (d) 3

11.



17.2 Area Under Graphs

- 16; underestimate
- (a) 8 (2 triangles) (b) 10 (2 triangles and 2 trapezia)
(c) 10.5 (2 triangles and 6 trapezia)
- 20 (actually 2 triangles and 3 trapezia)
- (a) (i) 300 m (ii) 975 m (b) (i) 10 m/s (ii) 16.25 m/s
- (a) 50 mph (b) 1.35 miles

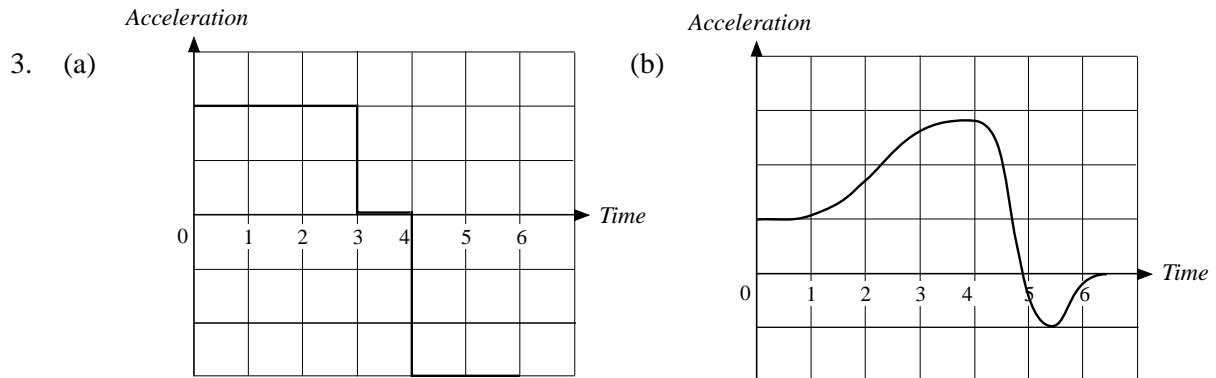
17.3 Tangents to Curves

- (a) Between B and C and between F and G (b) E and F (c) H and I
- (a)

x	0	1	2	3	4
Gradient	0	1	2	3	4

(b) Gradient is given by value of x

Answers



4. (a) Increases from zero up to a maximum of 30 m/s, uniform speed, followed by a decrease to zero speed.

(b) 1.3 m/s^2 (c) 1.8 km

5. (a) About 0.8 m/s^2 (b) 2200 m

6. (a) 1.4 m/s^2 (b) (i) about 150 m (ii) distance travelled in metres.

7. (a) About 2 m/s^2 (b) about 85 m (c) about 8.5 m/s

8. (a) (i) 0.7 s (ii) 20 m (b) 13 m/s (c) 3.26 s

9. (a) (i) 11 (ii) 0.05 (b) 3.5 km

10. (b) -0.23

17.4 Finding Coefficients

1. (a) $a = -0.5$, $b = 2$ (b) $a = 2$, $b = -3$ (c) $a = 24$, $b = -2$

(d) $a = -2$, $b = 10$ (e) $a = -1$, $b = 20$

2. Yes; $\frac{1}{5}$

3. $a = 6$, $b = 4$