

Use synthetic division to find the quotient and the remainder.

1) $6x^3 + 7x^2 - 15x - 10$ is divided by $x + 2$

2) $x^4 + 16$ is divided by $x - 2$

Use synthetic division to determine whether $x - c$ is a factor of the given polynomial.

3) $x^3 - 7x^2 + 14x - 8$; $x - 2$

4) $x^3 - 11x^2 + 12x + 80$; $x + 1$

Find the real solutions of the equation.

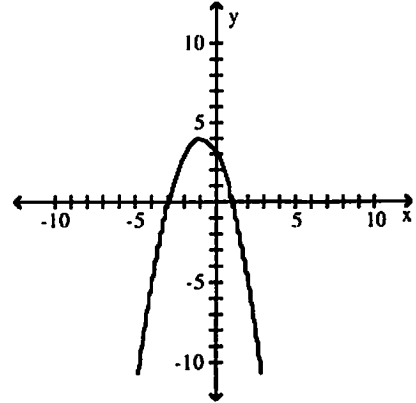
5) $4(x + 1)^2 + 11(x + 1) + 6 = 0$

6) $x + 5x^{1/2} + 4 = 0$

7) $x^{1/2} - 7x^{1/4} + 10 = 0$

List the intercepts of the graph.

8)



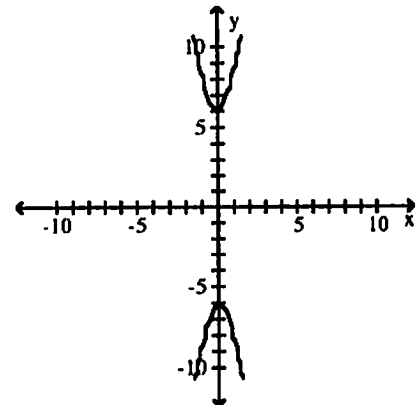
List the intercepts for the graph of the equation.

9) $9x^2 + y^2 = 9$

10) $y = x^2 + 16$

List the intercepts of the graph. Tell whether the graph is symmetric with respect to the x -axis, y -axis, origin, or none of these.

11)



Write the standard form of the equation of the circle with radius r and center (h, k) .

12) $r = 3$; $(h, k) = (0, 0)$

13) $r = 2$; $(h, k) = (9, -6)$

Solve the problem.

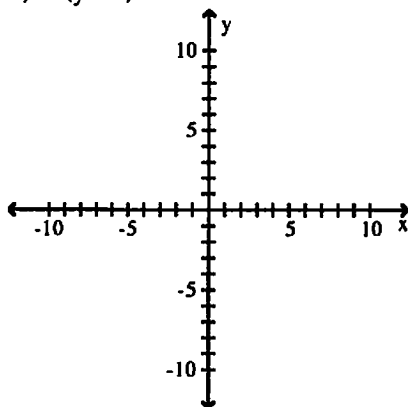
14) Find the equation of a circle in standard form where $C(6, -2)$ and $D(-4, 4)$ are endpoints of a diameter.

Find the center (h, k) and radius r of the circle with the given equation.

15) $(x - 2)^2 + (y - 6)^2 = 100$

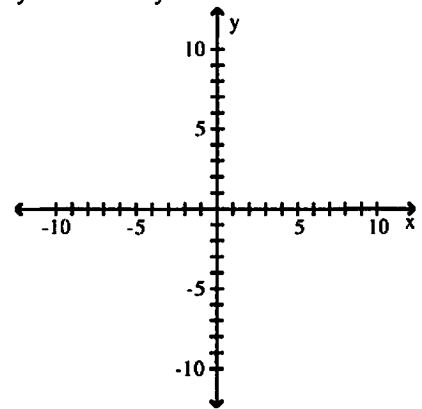
Graph the equation.

16) $(x - 3)^2 + (y + 2)^2 = 16$



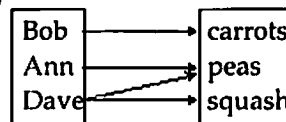
Find the center (h, k) and radius r of the circle. Graph the circle.

17) $x^2 + y^2 - 12x - 8y + 48 = 0$



Determine whether the relation represents a function. If it is a function, state the domain and range.

18)



19) $\{(-3, 6), (2, 3), (3, -5), (8, -2)\}$

Determine whether the equation defines y as a function of x .

20) $y = |x|$

21) $y^2 + x = 4$

Find the value for the function.

22) Find $f(2)$ when $f(x) = \frac{x^2 - 8}{x + 3}$.

23) Find $f(x + h)$ when $f(x) = 2x^2 - 2x - 5$.

Find the domain of the function.

$$24) g(x) = \frac{3x}{x^2 - 64}$$

$$25) f(x) = \sqrt{10 - x}$$

For the given functions f and g , find the requested function and state its domain.

$$26) f(x) = 3 - 4x; g(x) = -7x + 4$$

Find $f + g$.

$$27) f(x) = 6x + 9; g(x) = 3x + 2$$

Find $f \cdot g$.

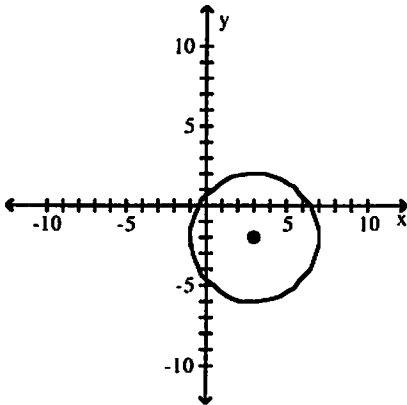
$$28) f(x) = 5x + 1; g(x) = 3x - 2$$

Find $\frac{f}{g}$.

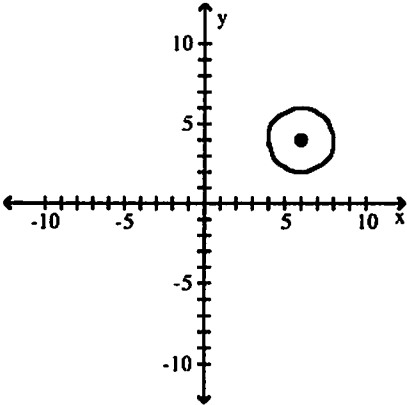
Answer Key

Testname: MATH1050(R6-3.1)REVIEW

- 1) $6x^2 - 5x - 5$; remainder 0
- 2) $x^3 + 2x^2 + 4x + 8$; remainder 32
- 3) Yes
- 4) No
- 5) $\{-\frac{7}{4}, -3\}$
- 6) no real solution
- 7) $\{16, 625\}$
- 8) $(-3, 0), (0, 3), (1, 0)$
- 9) $(-1, 0), (0, -3), (0, 3), (1, 0)$
- 10) $(0, 16)$
- 11) intercepts: $(0, 6)$ and $(0, -6)$
symmetric with respect to x-axis, y-axis, and origin
- 12) $x^2 + y^2 = 9$
- 13) $(x - 9)^2 + (y + 6)^2 = 4$
- 14) $(x - 1)^2 + (y - 1)^2 = 34$
- 15) $(h, k) = (2, 6)$; $r = 10$
- 16)



- 17) $(h, k) = (6, 4)$; $r = 2$



- 18) not a function
- 19) function
domain: $\{-3, 2, 3, 8\}$
range: $\{6, 3, -5, -2\}$
- 20) function

Answer Key

Testname: MATH1050(R6-3.1)REVIEW

- 21) not a function
- 22) $-\frac{4}{5}$
- 23) $2x^2 + 4xh + 2h^2 - 2x - 2h - 5$
- 24) $\{x \mid x \neq -8, 8\}$
- 25) $\{x \mid x \leq 10\}$
- 26) $(f + g)(x) = -11x + 7$; all real numbers
- 27) $(f \cdot g)(x) = 18x^2 + 39x + 18$; all real numbers
- 28) $(\frac{f}{g})(x) = \frac{5x+1}{3x-2}$; $\{x \mid x \neq \frac{2}{3}\}$