

Name \_\_\_\_\_

3 points each

**MULTIPLE CHOICE.** Choose the one alternative that best completes the statement or answers the question.

**Factor the GCF from each term in the expression.**

1)  $14x^3 - 6x^2 + 10x$

A)  $2x(7x^2 - 3x + 5)$

C)  $x(14x^2 - 6x + 10)$

B)  $2x(7x^3 - 3x^2 + 5x)$

D)  $2(7x^3 - 3x^2 + 5x)$

1) \_\_\_\_\_

**Factor by grouping.**

2)  $x^2 + 4x + 2x + 8$

A)  $(x + 4)(x + 2)$

B)  $(x - 4)(x + 2)$

C)  $(x + 4)(x - 2)$

D)  $(x - 4)(x - 2)$

2) \_\_\_\_\_

**Factor the polynomial. If the polynomial is prime, so state.**

3)  $40 + 39x + x^2$

A)  $(x + 8)(x + 5)$

B)  $(x + 40)(x - 1)$

C)  $(x + 40)(x + 1)$

D) prime

3) \_\_\_\_\_

**Factor completely. If the polynomial is prime, so state.**

4)  $15x^2 + 22x + 8$

A)  $(3x + 2)(5x + 4)$

B)  $(15x + 2)(x + 4)$

C)  $(3x - 2)(5x - 4)$

D) prime

4) \_\_\_\_\_

**Factor the difference of two squares.**

5)  $75x^2 - 3$

A)  $3(5x - 1)^2$

B)  $3(5x + 1)(5x - 1)$

C)  $3(5x + 1)^2$

D)  $6(5x + 1)(5x - 1)$

5) \_\_\_\_\_

**Simplify.**

6)  $\frac{8x^2 + 24x^3}{7x + 21x^2}$

A)  $\frac{8 + 24x^3}{7x + 21}$

B)  $\frac{8}{7}$

C)  $\frac{8x}{7}$

D)  $\frac{8x^2 + 24x^3}{7x + 21x^2}$

6) \_\_\_\_\_

**Determine the value or values of the variable where the expression is defined.**

7)  $\frac{x - 2}{x^2 - 81}$

A) all real numbers except  $x = 81$

B) all real numbers except  $x = 9$

C) all real numbers except  $x = 9, x = -9$

D) all real numbers except  $x = \frac{2}{81}$

7) \_\_\_\_\_

**Add or subtract.**

8)  $\frac{8}{x^2 - 16} - \frac{x^2 - 8}{x^2 - 16}$

8) \_\_\_\_\_

A) 0

B) -1

C) 1

D) undefined

**Find the least common denominator for the expression.**

9)  $\frac{8}{5a - 10} - \frac{9}{a^2 - 2a}$

9) \_\_\_\_\_

A)  $5a^2 - 10$

B)  $5a^2 - 2$

C)  $5a(a - 2)$

D)  $5a - 2$

**Simplify.**

10)  $\frac{4 + \frac{2}{x}}{\frac{x}{4} + \frac{1}{8}}$

10) \_\_\_\_\_

A)  $\frac{x}{16}$

B) 1

C)  $\frac{16}{x}$

D) 16

**Solve the equation and check your solution.**

11)  $\frac{1}{x} + \frac{1}{x + 7} = \frac{x + 8}{x + 7}$

11) \_\_\_\_\_

A)  $x = -7, x = -1$

B)  $x = 1$

C)  $x = 7, x = 1$

D)  $x = -7, x = 1$

**Solve the problem and answer the question.**

12) A baker can decorate the day's cookie supply four times as fast as his new assistant. If they decorate all the cookies working together in 20 minutes, how long would it take for each of them to decorate the cookies working individually?

12) \_\_\_\_\_

A) baker: 100 min  
assistant: 400 min

B) baker: 100 min  
assistant: 25 min

C) baker: 25 min  
assistant: 100 min

D) baker:  $6\frac{1}{4}$  min  
assistant: 25 min

**Simplify.**

13)  $\sqrt{150x^2}$

13) \_\_\_\_\_

A)  $5x^2\sqrt{6}$

B)  $5\sqrt{6}$

C)  $5\sqrt{6x^2}$

D)  $5x\sqrt{6}$

**Simplify the expression.**

14)  $7\sqrt{6} + 9\sqrt{54}$

14) \_\_\_\_\_

A)  $16\sqrt{6}$

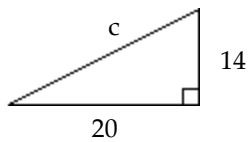
B)  $-34\sqrt{6}$

C)  $34\sqrt{6}$

D)  $-4\sqrt{6}$

Use the Pythagorean Theorem to find the indicated quantity. Round your answer to the nearest hundredth.

15)



15) \_\_\_\_\_

A)  $c = 596$

B)  $c = 298$

C)  $c = 17$

D)  $c = 24.41$

**SHORT ANSWER.** Write the word or phrase that best completes each statement or answers the question.

**Factor completely.**

16)  $6x^2 - 24x + 18$

16) \_\_\_\_\_

**Solve.**

17)  $25x^2 + 35x + 10 = -2$

17) \_\_\_\_\_

**Add or subtract.**

$$18) \frac{x}{8x - 5} - \frac{5}{24x - 15}$$

18) \_\_\_\_\_

**Divide.**

$$19) \frac{z^2 + 12z + 35}{z^2 + 14z + 45} \div \frac{z^2 + 7z}{z^2 + 13z + 36}$$

19) \_\_\_\_\_

**Simplify.**

$$20) \sqrt{275}$$

20) \_\_\_\_\_

## Answer Key

Testname: MATH80CH7,8,9V1

- 1) A
- 2) A
- 3) D
- 4) A
- 5) B
- 6) C
- 7) C
- 8) B
- 9) C
- 10) C
- 11) B
- 12) C
- 13) D
- 14) C
- 15) D
- 16)  $6(x - 3)(x - 1)$
- 17)  $-\frac{4}{5}, -\frac{3}{5}$
- 18)  $\frac{3x - 5}{3(8x - 5)}$
- 19)  $\frac{z + 4}{z}$
- 20)  $5\sqrt{11}$