

# Chapter 9 TECM 119 Practice Test

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

Divide the numerator and denominator of the fraction by the given factor and obtain an equivalent fraction.

1)  $\frac{3nk^4}{6n^4k}; 3k$  1) \_\_\_\_\_

A)  $\frac{nk^3}{2n^4}$

B)  $\frac{9nk^5}{18n^4k^2}$

C)  $\frac{3nk^4}{2n^4}$

D)  $\frac{nk^3}{6n^4k}$

2)  $\frac{2x^2 + 9x + 9}{x^2 + 9x + 18}; x + 3$  2) \_\_\_\_\_

A)  $\frac{x + 3}{x - 6}$

B)  $\frac{2x^3 + 15x^2 + 36x + 27}{x^3 + 12x^2 + 45x + 54}$

C)  $\frac{2x^2 + 8x + 6}{x^2 + 8x + 15}$

D)  $\frac{2x + 3}{x + 6}$

Reduce the fraction to simplest form.

3)  $\frac{24x^3yz^2}{20xy^2z^4}$  3) \_\_\_\_\_

A)  $\frac{4x^2y}{5z^2}$

B)  $\frac{6yz^2}{5x^2}$

C)  $\frac{6x^2}{5yz^2}$

D)  $\frac{4x^2}{5yz^2}$

4)  $\frac{y^2 + 12y + 32}{y^2 + 15y + 56}$  4) \_\_\_\_\_

A)  $\frac{12y + 4}{15y + 7}$

B)  $\frac{12y + 32}{15y + 56}$

C)  $\frac{y + 4}{y + 7}$

D)  $\frac{y^2 + 12y + 32}{y^2 + 15y + 56}$

Find the reciprocal of the expression.

5)  $-\frac{4rs}{5xy}$  5) \_\_\_\_\_

A)  $-\frac{5xy}{4rs}$

B)  $\frac{5xy}{4rs}$

C)  $-\frac{xy}{rs}$

D)  $\frac{4rs}{5xy}$

Multiply and simplify.

6)  $\frac{2z^3}{4} \times \frac{28}{z^2}$  6) \_\_\_\_\_

A)  $\frac{z}{14}$

B)  $\frac{14}{z}$

C)  $14z$

D)  $\frac{14z^2}{z^3}$

7)  $\frac{5x^2}{3} \times \frac{24}{x^3}$

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

A)  $\frac{x^5}{14}$

B)  $\frac{40x^2}{x^3}$

C)  $\frac{40}{x}$

D)  $\frac{x}{14}$

8)  $\frac{k^2 + 10k + 16}{k^2 + 14k + 48} \times \frac{k^2 + 6k}{k^2 + 5k + 6}$

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

A)  $\frac{k^2 + 6k}{k + 3}$

B)  $\frac{k}{k^2 + 14k + 48}$

C)  $\frac{1}{k + 3}$

D)  $\frac{k}{k + 3}$

Simplify the expression.

9)  $\left(\frac{2}{x}\right)^4$

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

A)  $\frac{16}{x^4}$

B)  $16x^4$

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

D)  $\frac{2}{x^4}$

Divide and simplify.

10)  $\frac{2z^3}{4} \div \frac{z^2}{12}$

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

A)  $\frac{6}{z}$

B)  $6z$

C)  $\frac{z}{6}$

D)  $\frac{6z^2}{z^3}$

Find the lowest common denominator of the set of fractions.

11)  $\frac{11}{8x}, \frac{17}{12x^2}$

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

A)  $24x$

B)  $-4x$

C)  $16x^2$

D)  $24x^2$

Change the indicated sum of the fractions to an indicated sum of the equivalent fractions with the proper lowest common denominator.

12)  $\frac{4}{9x} + \frac{1}{12x}$

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

A)  $\frac{8x}{18x} + \frac{3x}{18x}$

B)  $\frac{16}{36x} + \frac{3}{36x}$

C)  $\frac{48x}{108x} + \frac{9x}{108x}$

D)  $\frac{16x^2}{36x^2} + \frac{4x^2}{36x^2}$

Perform the indicated operation and simplify.

13)  $\frac{4}{z^2} - \frac{2}{z}$

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

A)  $\frac{4z + 2}{z^2}$

B)  $\frac{4 + 2z}{z^2}$

C)  $\frac{4 - 2z}{z^2}$

D)  $\frac{2z - 4}{z}$

Perform the indicated operation. Simplify, if possible.

$$14) \frac{b}{b^2 - 25} + \frac{5}{b + 5} - \frac{6}{b}$$

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

A)  $\frac{6b^2 - 25b + 150}{b(b + 5)(b - 5)}$

B)  $\frac{25(b + 6)}{b(b + 5)(b - 5)}$

C)  $\frac{25(b - 6)}{(b + 5)(b - 5)}$

D)  $\frac{-25(b - 6)}{b(b + 5)(b - 5)}$

Solve for x.

$$15) \frac{x}{2} - \frac{x}{8} = 5$$

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

A)  $\frac{40}{3}$

B) 16

C) 10

D) 40

$$16) \frac{23}{x} = 6 - \frac{1}{x}$$

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

A) 4

B)  $\frac{23}{6}$

C)  $\frac{3}{11}$

D) 3

$$17) 1 - \frac{3}{2x} = \frac{7}{4}$$

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

A)  $\frac{1}{2}$

B) -2

C)  $-\frac{1}{2}$

D) 2

Solve the equation.

$$18) \frac{3}{y} = \frac{y}{6y - 15}$$

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

A) 3, 15

B) -3, -15

C) 3, -15

D) -3, 15

$$19) \frac{1}{x - 1} + \frac{4}{2x - 2} = 3$$

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

A) 12

B) 2

C) 0

D) 1

Solve the problem.

20) A plane flies 480 miles with the wind and 320 miles against the wind in the same length of time. If the speed of the wind is 28 mph, what is the speed of the plane in still air?

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

A) 140 mph

B) 145 mph

C) 130 mph

D) 165 mph

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### Answer Key

- 1) A
- 2) D
- 3) C
- 4) C
- 5) A
- 6) C
- 7) C
- 8) D
- 9) A
- 10) B
- 11) D
- 12) B
- 13) C
- 14) D
- 15) A
- 16) A
- 17) B
- 18) A
- 19) B
- 20) A