

115 Practice for Ch 1 exam

Disclaimer: The actual exam differs

Evaluate.

1) $\frac{x+y}{5}$, for $x=9$ and $y=16$

$$\frac{9+16}{5} = \frac{25}{5} = 5$$

1) 5

2) $\frac{x+9}{2}$, for $x=4$

$$\frac{4+9}{2} = \frac{13}{2}$$

2) $13\frac{1}{2}$

Solve the problem.

- 3) A train must cover a distance of 2080 miles. The velocity, in miles per hour, of the train is $\frac{2080}{t}$ where t is the time, in hours, to complete the trip. If the train completes the trip in 20 hours, what is its velocity?

$$\frac{2080}{20} = 104 \text{ mph}$$

3) $104 \text{ miles per hour}$

- 4) Bill takes four times as long to do a job as Jose. Suppose t represents the time it takes Bill to do the job. Then $t/4$ represents the time it takes Jose. How long does it take Jose if it takes Bill 33 minutes?

$$\frac{33}{4} = 8\frac{1}{4} \text{ minutes}$$

4) $8\frac{1}{4} \text{ minutes}$

Decide if the given number is a solution to the given equation.

5) $5p+4p-2=70$; 8

$$5(8)+4(8)-2 = 70$$

$$40+32-2 = 70$$

$$72-2 = 70$$

$$70=70$$

yes - 8 is a solution

5) Yes

Translate to an algebraic expression.

- 6) 2 less than 5 times a number

$$5x-2$$

6) $5x-2$

7) One tenth of x

$$\frac{1}{10}x \quad \text{or} \quad \frac{x}{10}$$

make sure "x"
is not in the denominator

$$7) \underline{\frac{x}{10} \text{ or } \frac{1}{10}x}$$

Translate the problem to an equation. Do not solve.

8) 32 minus twice a number equals 8 more than the number.

$$32 - 2x = 8 + x$$

$$8) \underline{32 - 2x = 8 + x}$$

9) $-\frac{10}{11}$ of a number plus 12 equals 2.

$$-\frac{10}{11}x + 12 = 2$$

$$9) \underline{-\frac{10}{11}x + 12 = 2}$$

Use the commutative law of multiplication to write an equivalent expression.

10) $4 + xy =$

$$4 + yx$$

$$10) \underline{4 + yx}$$

Use the associative law of addition to write an equivalent expression.

11) $6 + (s + t) =$

$$(6 + s) + t$$

$$11) \underline{(6 + s) + t}$$

Use the distributive law to multiply.

12) $2(3x + 4y + 7)$

$$2(3x) + 2(4y) + 2(7) \\ 6x + 8y + 14$$

$$12) \underline{6x + 8y + 14}$$

13) $(5n + m + 3)7$

$$(5n)7 + m(7) + 3(7) = \\ 35n + 7m + 21$$

$$13) \underline{35n + 7m + 21}$$

Use the distributive law to factor the given expression.

$$14) 6x + 10 = 2(3x + 5)$$

$$14) \underline{2(3x + 5)}$$

Find all the factors of the number. Write as a list.

$$15) 42 \quad \begin{array}{l} 1 \times 42 \\ 2 \times 21 \\ 3 \times 14 \\ 6 \times 7 \end{array} \quad \{1, 2, 3, 6, 7, 14, 21, 42\}$$

$$15) \underline{\frac{1, 2, 3, 6, 7, 14, 21}{42}}$$

Find the prime factorization of the number. If the number is prime, state this. Write answer as a product.

$$16) 8775 \quad \begin{array}{c} 8775 \\ \swarrow \searrow \\ 9 \quad 975 \\ \swarrow \searrow \quad \swarrow \searrow \\ 3 \quad 3 \quad 25 \quad 39 \\ \swarrow \searrow \quad \swarrow \searrow \\ 5 \quad 5 \quad 3 \quad 13 \end{array}$$

$$8775 = 3 \cdot 3 \cdot 3 \cdot 5 \cdot 5 \cdot 13$$

$$16) \underline{\begin{array}{l} 3 \cdot 3 \cdot 3 \cdot 5 \cdot 5 \cdot 13 \\ \text{or } 3^3 \cdot 5^2 \cdot 13 \end{array}}$$

Simplify.

$$17) \frac{30}{920} = \frac{3}{92}$$

$$17) \underline{\frac{3}{92}}$$

$$\frac{30 \div 10}{920 \div 10} = \frac{3}{92}$$

(If you write $\frac{30}{920} \div 10$ this is incorrect!!)

Perform the indicated operation and, if possible, simplify.

$$18) \frac{48x}{y} \cdot \frac{z}{18} = \frac{48xz}{18y} = \frac{8xz}{3y}$$

$$18) \underline{\frac{8xz}{3y}}$$

$$19) \frac{3}{5} - \frac{5}{11} \quad \text{LCD} = 55$$

$$19) \underline{\frac{8}{55}}$$

$$\frac{3(11)}{5(11)} - \frac{5(5)}{11(5)} = \frac{33 - 25}{55} = \frac{8}{55}$$

Translate the phrase to mathematical language and simplify.

20) Subtract 13 from -19.

$$\begin{aligned} -19 - 13 \\ = -32 \end{aligned}$$

$$20) \underline{-19 - 13 = -32}$$

Perform the indicated operation and, if possible, simplify.

$$\begin{aligned} 21) \frac{\frac{4}{11}}{\frac{7}{15}} &= \frac{4}{11} \div \frac{7}{15} \\ &= \frac{4}{11} \cdot \frac{15}{7} = \\ &= \frac{60}{77} \end{aligned}$$

$$21) \underline{\frac{60}{77}}$$

$$\begin{aligned} 22) \frac{5}{8} - \left(-\frac{3}{7}\right) &= \frac{5}{8} + \frac{3}{7} \\ &= \frac{5 \cdot 7}{8 \cdot 7} + \frac{3 \cdot 8}{7 \cdot 8} = \frac{35}{56} + \frac{24}{56} \\ &= \frac{59}{56} \end{aligned}$$

$$22) \underline{\frac{59}{56}}$$

Simplify.

$$\begin{aligned} 23) (-2y)^4 &= (-2y)(-2y)(-2y)(-2y) \\ &= 16y^4 \end{aligned}$$

$$23) \underline{16y^4}$$

$$24) (-2x)^3 = (-2x)(-2x)(-2x) = -8x^3$$

$$24) \underline{-8x^3}$$

Perform the indicated operation and, if possible, simplify.

$$25) -\frac{2}{3} - \frac{1}{2}$$

$$\begin{aligned} &= \frac{-2 \cdot 2}{3 \cdot 2} - \frac{1 \cdot 3}{2 \cdot 3} \\ &= \frac{-4}{6} - \frac{3}{6} = \frac{-7}{6} \end{aligned}$$

$$25) \underline{-\frac{7}{6}}$$

Simplify.

$$\begin{aligned} 26) (2x)^3 \\ = (2x)(2x)(2x) \\ = 8x^3 \end{aligned}$$

$$\begin{aligned} 27) 2 + 8^2 - (-9) \cdot 12 \\ = 2 + 64 + 9 \cdot 12 \\ = 2 + 64 + 108 \\ = 66 + 108 \\ = 174 \end{aligned}$$

$$28) -70 \div -7 \cdot \frac{1}{6}$$

$$= +10 \cdot \left(-\frac{1}{6}\right) = -\frac{10}{6} = -\frac{5}{3}$$

↑
Simplify

$$29) \frac{27 - 2 \cdot 3}{2^3 \div 2^2 - (-2)^2} = \frac{27 - 6}{8 \div 4 - 4} = \frac{21}{2 - 4} = \frac{21}{-2} \text{ or } -\frac{21}{2}$$

$$\begin{aligned} 30) 2[-4 + 8(-5 + 8)] &= \\ 2[-4 + 8(3)] &= \\ = 2[-4 + 24] &= \\ = 2[20] &= 40 \end{aligned}$$

$$\begin{aligned} 31) 2(-6) + |4(-6)| &= \\ 2(-6) + |-24| &= \\ 2(-6) + 24 &= \\ = 12 + 24 &= \\ = 36 & \end{aligned}$$

Evaluate.

$$32) 9x \div 9x^2, \text{ for } x = 3$$

$$\begin{aligned} 9(3) \div 9(3)^2 \\ 9(3) \div 9(9) \\ 27 \div 9(9) \\ 3(9) = 27 \end{aligned}$$

$$26) \underline{8x^3}$$

$$27) \underline{174}$$

$$28) \underline{-\frac{5}{3}}$$

$$29) \underline{-\frac{21}{2}}$$

$$30) \underline{40}$$

$$31) \underline{36}$$

$$32) \underline{27}$$

33) $(-x)^2 - 8x$, for $x = -4$

$$\begin{aligned} &(-(-4))^2 - 8(-4) \\ &(4)^2 - 8(-4) \\ &16 - 8(-4) \end{aligned}$$

$$= 16 + 32$$

$$= 48$$

33) 48

34) $\frac{3x - 2x^2}{x^2 - 10}$, for $x = -3$

$$\frac{3(-3) - 2(-3)^2}{(-3)^2 - 10}$$

$$= \frac{3(-3) - 2(9)}{9 - 10} = \frac{-9 - 18}{-1} = \frac{-27}{-1} = 27$$

34) 27

Simplify.

35) $6x - y - 5(4x - 7y + 7z)$

$$\begin{aligned} &6x - y - 20x + 35y - 35z \\ &-14x + 34y - 35z \end{aligned}$$

35) $-4x + 34y - 35z$

36) $9x - (5x - 4) - (-6x + 1)$

$$\begin{aligned} &9x - 5x + 4 + 6x - 1 \\ &10x + 3 \end{aligned}$$

36) $10x + 3$

Solve using the multiplication principle.

(NOT on ch 1 exam)

37) $-3 = \frac{a}{-2}$

$$-3(-2) = \frac{a}{-2}(-2)$$

$$6 = a$$

37) 6

Solve using the addition principle.

(NOT on ch 1 exam)

38) $11 = a - 29$

$$11 + 29 = a - 29 + 29$$

$$40 = a$$

38) 40