HW–4A (Ratio and Proportion) Date:_____, Name_____

Please do not use any calculator in doing your homework.

You need Scantron ***882E***. Please use a pencil to mark the answers. Make sure your Scantron is ***clean*** , flat, and ***not folded*** when you submit.

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

Write the ratio using fractional notation. Do not simplify.

1) 245 to 83 1) _____

A) $\frac{162}{245}$ B) $\frac{83}{245}$ C) $\frac{162}{83}$ D) $\frac{245}{83}$

2) 9.4 to 1.9 2) _____

A) $\frac{7.5}{1.9}$ B) $\frac{1.9}{9.4}$ C) $\frac{9.4}{1.9}$ D) $\frac{7.5}{9.4}$

Write the ratio as a ratio of whole numbers using fractional notation. Write the fraction in simplest form.

3) 25 to 40 3) _____

A) $\frac{5}{40}$ B) $\frac{25}{8}$ C) $\frac{5}{8}$ D) $\frac{25}{40}$

4) 2.24 to 2.71 4) _____

A) $\frac{2.24}{2.71}$ B) $\frac{271}{224}$ C) $\frac{224}{271}$ D) $\frac{2.71}{2.24}$

5) 45 liters to 42 liters 5) _____

A) $\frac{15}{42}$ liters B) $\frac{15}{14}$ liters C) $\frac{15}{14}$ D) $\frac{15}{42}$

6) 9 miles to 6 miles 6) _____

A) $\frac{3}{2}$ miles B) 3 miles C) 3 D) $\frac{3}{2}$

7) \$63 to \$90 7) _____

A) $\frac{7}{10}$ B) $\$\frac{63}{10}$ C) $\$\frac{7}{10}$ D) $\frac{63}{10}$

8) 960 copies to 240 copies 8) _____

A) $\frac{1}{4}$ B) $\frac{4}{1}$ C) $\frac{12}{4}$ D) $\frac{1}{24}$

Find the ratio described as a fraction in simplest form.

9) According to an organization's membership list, it has 2000 members who are 50 or older and 1250 members who are younger than 50. What is the ratio of members who are younger than 50 to the total number of members? 9) _____

A) $\frac{8}{5}$ B) $\frac{5}{8}$ C) $\frac{8}{13}$ D) $\frac{5}{13}$

10) According to an organization's membership list, it has 1500 members who are married and 1750 members who are single. What is the ratio of members who are married to members who are single? 10) _____

A) $\frac{7}{6}$ B) $\frac{6}{7}$ C) $\frac{7}{30}$ D) $\frac{6}{35}$

11) In a large triathlon, 716 males and 363 females finished the race. Find the ratio of female finishers to male finishers. 11) _____

A) $1\frac{353}{363}$ B) $\frac{716}{363}$ C) 0.51 D) $\frac{363}{716}$

Write the rate as a fraction in simplest form.

12) 52 miles in 26 minutes 12) _____

A) $\frac{2 \text{ miles}}{1 \text{ minute}}$ B) $\frac{52 \text{ miles}}{26 \text{ minutes}}$ C) $\frac{1 \text{ mile}}{2 \text{ minutes}}$ D) $\frac{10 \text{ miles}}{5 \text{ minutes}}$

13) 82 yards in 41 seconds 13) _____

A) $\frac{2 \text{ yards}}{1 \text{ second}}$ B) $\frac{10 \text{ yards}}{5 \text{ seconds}}$ C) $\frac{82 \text{ yards}}{41 \text{ seconds}}$ D) $\frac{2 \text{ seconds}}{1 \text{ yard}}$

14) 372 miles in 32 hours 14) _____

A) $\frac{93 \text{ miles}}{32 \text{ hours}}$ B) $\frac{93 \text{ miles}}{8 \text{ hours}}$ C) $\frac{372 \text{ miles}}{8 \text{ hours}}$ D) $\frac{4 \text{ miles}}{32 \text{ hours}}$

15) 5 cars for 10 people 15) _____

A) $\frac{1 \text{ car}}{2 \text{ people}}$ B) $\frac{2 \text{ cars}}{1 \text{ person}}$ C) $\frac{5 \text{ cars}}{10 \text{ people}}$ D) $\frac{5 \text{ cars}}{2 \text{ people}}$

16) 8 tests for 32 students 16) _____

A) $\frac{8 \text{ tests}}{32 \text{ students}}$ B) $\frac{1 \text{ test}}{4 \text{ students}}$ C) $\frac{1 \text{ tests}}{2 \text{ students}}$ D) $\frac{4 \text{ tests}}{1 \text{ student}}$

17) 42 printers for 30 computers 17) _____

A) $\frac{7 \text{ printers}}{5 \text{ computers}}$ B) $\frac{30 \text{ printers}}{42 \text{ computers}}$ C) $\frac{42 \text{ printers}}{6 \text{ computers}}$ D) $\frac{6 \text{ printers}}{30 \text{ computers}}$

18) 344 miles on 64 gallons 18) _____

A) $\frac{43 \text{ miles}}{64 \text{ gallons}}$ B) $\frac{43 \text{ miles}}{8 \text{ gallons}}$ C) $\frac{8 \text{ miles}}{8 \text{ gallons}}$ D) $\frac{344 \text{ miles}}{8 \text{ gallons}}$

19) 266 hours for 21 projects 19) _____

A) $\frac{21 \text{ hours}}{38 \text{ projects}}$ B) $\frac{38 \text{ hours}}{3 \text{ projects}}$ C) $\frac{266 \text{ hours}}{38 \text{ projects}}$ D) $\frac{38 \text{ hours}}{4 \text{ projects}}$

20) 418 calories in a 2–ounce sausage biscuit 20) _____

A) $\frac{209 \text{ cal}}{1 \text{ oz}}$ B) $\frac{2 \text{ oz}}{418 \text{ cal}}$ C) $\frac{1 \text{ cal}}{209 \text{ oz}}$ D) $\frac{418 \text{ cal}}{2 \text{ oz}}$

Write the rate as a unit rate.

21) 468 miles in 9 hours 21) _____

A) 52 miles B) 4212 miles C) 477 miles/hour D) 52 miles/hour

22) 666 miles on 18 gallons of gas 22) _____

A) 11,988 miles B) 684 gallons

C) 37 miles/gallon D) 0.027 miles/gallon

23) 16 cents for 4 marbles 23) _____

A) 20 marbles B) 0.25 cents/marble

C) 64 cents/marble D) 4 cents/marble

24) $3800 earned in 4 weeks 24) _____

A) $475.00/week B) $0.0011/week C) $760.00/week D) $950.00/week

25) 1080 cars in 360 households 25) _____

A) 3 cars/household B) 720 cars/household

C) 0.333 car/household D) 1440 cars/household

26) 304 people in 20 buses 26) _____

A) 284 people/bus B) 152 people/bus

C) 15.2 people/bus D) 0.066 person/bus

27) A concert tour grossed $150,000 for 10 shows. 27) _____

A) $1500/concert B) $15,000/concert

C) $7500/concert D) $150,000/10 concerts

28) An animal can move at 1500 feet per hour. Write this rate in feet per minute. 28) _____

A) 90,000 ft/min B) 25 ft/min C) 85 ft/min D) $\frac{5}{12}$ ft/min

Write the sentence as a proportion.

29) 39 children is to 45 bicycles as 13 children is to 15 bicycles 29) _____

A) $\frac{39 \text{ children}}{45 \text{ bicycles}} = \frac{45 \text{ children}}{13 \text{ bicycles}}$ B) $\frac{39 \text{ children}}{45 \text{ bicycles}} = \frac{13 \text{ children}}{15 \text{ bicycles}}$

C) $\frac{13 \text{ children}}{45 \text{ bicycles}} = \frac{15 \text{ children}}{39 \text{ bicycles}}$ D) $\frac{39 \text{ children}}{13 \text{ bicycles}} = \frac{45 \text{ children}}{15 \text{ bicycles}}$

30) $56 is to 49 bottles as $32 is to 28 bottles 30) _____

A) $\frac{\$56}{28 \text{ bottles}} = \frac{\$32}{49 \text{ bottles}}$ B) $\frac{\$56}{32 \text{ bottles}} = \frac{\$49}{28 \text{ bottles}}$

C) $\frac{\$49}{56 \text{ bottles}} = \frac{\$32}{28 \text{ bottles}}$ D) $\frac{\$56}{49 \text{ bottles}} = \frac{\$32}{28 \text{ bottles}}$

Determine whether the proportion is true or false.

31) $\frac{32}{36} = \frac{40}{45}$ 31) _____

A) True B) False

32) $\frac{8}{12} = \frac{3}{4}$ 32) _____

A) True B) False

33) $\frac{11}{9} = \frac{3}{11}$ 33) _____

A) True B) False

34) $\frac{7}{28} = \frac{6}{24}$ 34) _____

A) True B) False

35) $\frac{480}{840} = \frac{660}{1155}$ 35) _____

A) True B) False

36) $\frac{0.8}{0.5} = \frac{0.7}{0.4}$ 36) _____

A) True B) False

For the proportion, find the unknown number n.

37) $\frac{n}{7} = \frac{12}{42}$ 37) _____

A) 7 B) 2 C) 3 D) 6

38) $\frac{28}{4} = \frac{21}{n}$ 38) _____

A) 3 B) 4 C) 21 D) 7

39) $\frac{12}{60} = \frac{15}{n}$ 39) _____

A) 180 B) 60 C) 75 D) 5

40) $\frac{n}{8} = \frac{32}{20}$ 40) _____

A) $\frac{256}{5}$ B) $\frac{16}{5}$ C) $\frac{5}{64}$ D) $\frac{64}{5}$

Use a proportion to solve the problem.

41) On a map, the length of a nature–center trail is 6.1 centimeters. If the scale is 3 centimeters to 30 kilometers, what is the actual length of the trail? 41) _____

A) 61 km B) 65 km C) 122 km D) 62 km

42) Joan can mow a 4–acre field in 2 hours. How long would it take her to mow a 2.4–acre field? 42) _____

A) 1.2 hr B) 3.2 hr C) 4.2 hr D) 0.6 hr

43) A label printer prints 8 pages of labels in 2.5 seconds. How long will it take to print 72 pages of labels? 43) _____

A) 26.50 sec B) 25.50 sec C) 22.50 sec D) 24.50 sec

44) If 4 sandwich rolls cost $0.44, how much will 15 rolls cost? 44) _____

A) $1.76 B) $1.65 C) $2.65 D) $3.76

45) Jim drove 123 miles in 3 hours. If he can keep the same pace, how long will it take him to drive 984 miles? 45) _____

A) 34 hr B) 24 hr C) 369 hr D) 48 hr

46) If a spring stretches 6 meters when a 5-kilogram weight is attached to it, how much will it stretch when a 30-kilogram weight is attached to it? 46) _____

A) 36 m B) 39 m C) 35 m D) 38 m

47) On Anne's bicycle, the ratio of pedal turns to rear-wheel turns in second gear is 4 to 7. If her rear wheel turns 742 times per mile, how many times does she turn the pedal in one mile? 47) _____

A) 424 times B) 1298.5 times C) 746 times D) 749 times

48) To determine the number of fish in a lake, a park ranger catches 200 fish, tags them, and returns them to the lake. Later, 72 fish are caught, and it is found that 24 of them are tagged. Estimate the number of fish in the lake. 48) _____

A) 345,600 fish B) 9 fish C) 600 fish D) 67 fish

49) A quality-control inspector examined 220 calculators and found 8 of them to be defective. At this rate, how many defective calculators will there be in a batch of 6600 calculators? 49) _____

A) 30 calculators B) 240 calculators C) 1760 calculators D) 4 calculators

50) Under typical conditions, $1\frac{1}{2}$ ft of snow will melt to 2 in. of water. To how many inches of water will $3\frac{1}{3}$ ft of snow melt? 50) _____

A) $6\frac{2}{3}$ in. B) $4\frac{4}{9}$ in. C) 5 in. D) $4\frac{5}{9}$ in.