

Name KEY

Class _____

Date _____

Exam
Chapter 2 Review

Solve each proportion.

1. $\frac{2}{1.2} = \frac{5}{k}$

$2k = 6$
 $k = 3$

2. $\frac{12}{48} = x$

$x = \frac{1}{4}$

3. $\frac{m-4}{20} = \frac{5m+3}{4}$

$100m + 60 = 4m - 16$
 $96m = -76$
 $m = -\frac{76}{96}$

$m = \frac{-38}{48}$
 $m = -\frac{19}{24}$

Solve each equation. Check your answer.

4. $7y + 5 = 3y - 31$

$4y = -36$
 $y = -9$

5. $\frac{1}{2}(t+7) = 32$

$t+7 = 64$
 $t = 57$

6. $\frac{2h-6}{6} = \frac{2}{3}$

$6h - 18 = 12$
 $6h = 30$
 $h = 5$

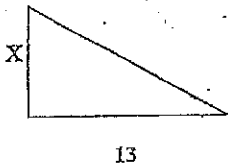
6a. $\frac{7}{x} = 14$

$7 = 14x$
 $x = \frac{1}{2}$

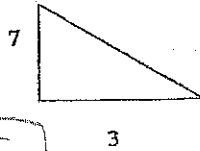
7. A cheetah ran 300 feet in 2.92 seconds. What was the cheetah's average speed in miles per minute?

The figures are similar. Find the missing length.

8.

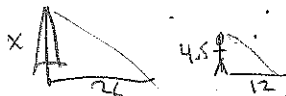


$\frac{x}{7} = \frac{13}{3}$
 $3x = 91$



$x = \frac{91}{3} = 30.\bar{3}$

9. A tree casts a 26-ft shadow. A boy standing nearby casts a 12-ft shadow, forming similar triangles. His height is 4.5 ft. How tall is the tree?



$\frac{x}{4.5} = \frac{26}{12}$

$12x = 117$

$x = \frac{117}{12} = 9.75 \text{ feet.}$

Tell whether each percent of change is an increase or decrease. Then find the percent of change.

10. Original amount: \$90

New amount: \$84.50

Decrease

$\frac{90 - 84.5}{90}$
 $\frac{5.5}{90} = 6\%$

11. Original amount: \$100

New amount: \$140

Increase

$\frac{140 - 100}{100}$
 $\frac{40}{100} = 40\%$

Solve each equation.

12. $\frac{5}{4} + \frac{2x}{3} = \frac{7}{12}$

$\frac{15}{12} + \frac{8x}{12} = \frac{7}{12}$

$15 + 8x = 7$

$8x = -8$

$x = -1$

13. $\frac{3x}{5} + \frac{8}{2} = 10$

$\frac{6x}{10} + \frac{40}{10} = \frac{100}{10}$

$6x + 40 = 100$

$6x = 60$

$x = 10$

14. $\frac{x}{4} - 6 = 2$

$\frac{x}{4} = 8$

$x = 32$

15. $3(x-5) = 5x-6-2x$

$3x-15 = 5x-6-2x$

$3x-15 = 3x-6$

$-15 = -6$

NO SOLUTION

REVISION #'s 14/15

For problems 14 and 15, Declare a variable, write an equation, then solve.

14. An online music club sells compact discs for \$13.95 each plus \$1.95 shipping and handling per order. If Maria's total bill was \$85.65, how many compact discs did Maria purchase?

$x = \# \text{ of CDs}$
 $13.95x + 1.95 = 85.65$
 $13.95x = 83.7$
 $x = 6 \text{ CDs}$

15. You are trying to choose between two gym options. For a monthly plan, Planet Fitness has a fee of \$15 plus also costs \$2.50 every time you go. Bay State Gym's fee is \$30 but is only \$1 every time that you go. At what point do the 2 gym's cost the same amount of money? Which option would you choose based upon your personal preference?

$x = \# \text{ of VISITS}$
 $2.5x + 15 = x + 30$
 $1.5x + 15 = 30$
 $1.5x = 15$
 $15x = 150$
 $x = 10 \text{ VISITS}$

16. The scale of a map is 3 cm : 50 mi. Determine the distance between two cities that are 4.2 cm apart on the map.

$\frac{3 \text{ cm}}{50 \text{ mi}} = \frac{4.2 \text{ cm}}{x \text{ mi}}$
 $3x = 210$
 $x = 70 \text{ miles}$

17. The sum of 4 consecutive integers is 78. What are the 4 integers?

$n + (n+1) + (n+2) + (n+3) = 78$
 $4n + 6 = 78$
 $4n = 72$
 $n = 18$
 18, 19, 20, 21

18. The sum of 4 consecutive odd integers is 24. What are the 4 integers?

$n + (n+2) + (n+4) + (n+6) = 24$
 $4n + 12 = 24$
 $4n = 12$
 $n = 3$
 3, 5, 7, 9

19. There are 20 squid and 36 eels in a fish tank. What is the ratio of squid to eels? What is the rate of squid to eels?

$\frac{20 \text{ squid}}{36 \text{ eels}} = \frac{\text{RATIO}}{\text{RATE}}$

RATIO	RATE
$\frac{5 \text{ squid}}{9 \text{ eels}}$	$\frac{.5 \text{ squid}}{1 \text{ eels}}$

 rate: always 1 in denominator

20. Write a proportion to solve this problem.

When planning for their wedding reception Joey and Sarah were told that Riverside Gallery would charge \$550 to use their function room for the 60 guests they planned on inviting. They have since changed their plans and expect to invite 107 guests. How much should they plan to pay for the function room?

$\frac{550}{60} = \frac{x}{107}$
 $60x = 58,850$
 $x = 980.83$

21. Sally bought 30 of the same present for her friends to give away at her birthday party. She initially purchased 18 online for a cost of \$42. She then realized she needed more so she drove to the store and purchased 12 more of the same item for \$20. Which place offered the better deal? Show the work that justifies your answer.

dollars / gift

$\frac{42}{18} = 2.33$

$\frac{20}{12} = 1.67$

BETTER DEAL AT STORE

22. Solve for R.

$$\frac{CR}{B} = 2v \cdot B$$

$$\frac{CR}{C} = \frac{2vB}{C}$$

$$R = \frac{2vB}{C}$$

23. Solve for y

$$\frac{rw+y}{6} = f-b$$

$$rw+y = 6f$$

$$-rw \quad -rw$$

$$y = 6f - rw$$

24. Solve for x

$$ax+bx=t$$

$$\frac{x(at+b)}{at+b} = \frac{t}{at+b}$$

$$x = \frac{t}{at+b}$$

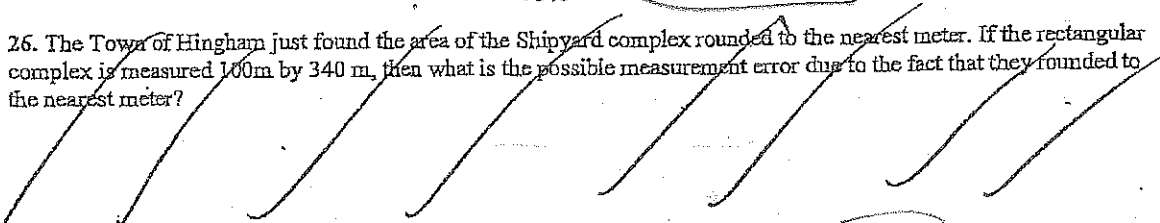
25. You were supposed to Thunder Muscle energy Drink for \$3.10 per can. In your haste to get it on the shelves, you mistakenly marked the price as \$2.46. What was the percent error (relative error) in your prices?

$$\frac{3.10 - 2.46}{3.10}$$

$$\frac{-0.64}{3.10}$$

21% error

26. The Town of Hingham just found the area of the Shipyard complex rounded to the nearest meter. If the rectangular complex is measured 100m by 340 m, then what is the possible measurement error due to the fact that they rounded to the nearest meter?



ALREADY DONE!

27. You are trying to save up to buy the new iPhone 6 which is supposed to come out 18 months from now. You put \$300 into a savings account that yields 3.6% annually. If the phone is going to cost \$345 will you have enough money to buy it?

$$I = prt$$

$$I = 300(.036)(1.5)$$

$$I = 16.2$$

$$\$316.20 < \$345$$

NO, YOU WON'T HAVE ENOUGH

Solve %

28. 15% of 23 is what #?

$$.15 \cdot 23 = x$$

$$x = 3.45$$

15

29. 18 is what % of 40?

$$18 = x \cdot 40$$

$$x = .45$$

$$x = 45\%$$

30. 36 as 125% of what #?

$$36 = 1.25 \cdot x$$

$$x = 28.8$$

31. What # is 42% of 60?

$$x = .42 \cdot 60$$

$$x = 25.2$$

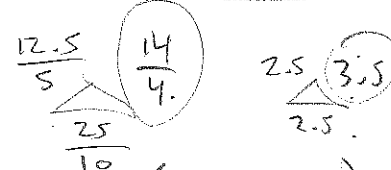
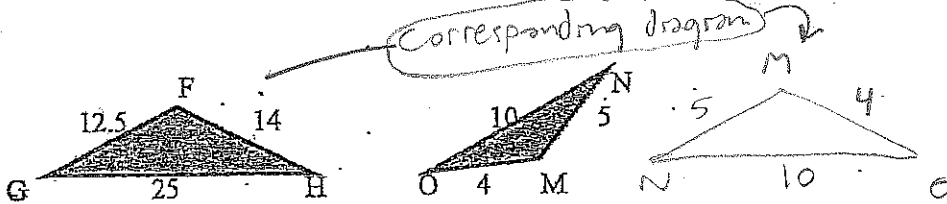
32. A player's batting average is the number of hits divided by the number of at bats. If Jenny has a batting average of .329 and has 150 hits then how many times has she been at bat? Declare a variable, write an equation, and solve.

$$AVG = \frac{\text{hits}}{AB} \quad .329 = \frac{150}{x} \quad \cdot x$$

$$.329x = 150$$

$$x = 456 \text{ HITS}$$

33. Joey thinks that $\triangle FGH \sim \triangle MNO$. Prove whether he is correct or not.



(RATIOS NOT EQUIVALENT FOR ALL 3 SIDES)

NO, NOT SIMILAR