

Tell whether each scale reduces, enlarges, or preserves the size of the actual object.

21) 1 yd: 1 ft

$$21) \frac{1 \text{ yd}}{1 \text{ ft}} = \frac{3 \text{ ft}}{1 \text{ ft}} = 3$$

Scale enlarges the actual size

22) 100 cm.: 1 m

$$22) \frac{100 \text{ cm}}{1 \text{ m}} = \frac{1 \text{ m}}{1 \text{ m}} = 1$$

Preserves the scale since scale factor is 1.

23) .25 in: 1 ft.

$$23) \frac{.25 \text{ in}}{1 \text{ ft}} = \frac{.25 \text{ in}}{12 \text{ in}} = .02$$

Scale reduced actual size

24) What scale factor relates a 20 in scale model to an 80 ft. Apatosaurus?

24) 20 in : 80 ft

$$\frac{20 \text{ in}}{80 \text{ ft}} = \frac{1 \text{ in}}{4 \text{ ft}} = \frac{1 \text{ in}}{48 \text{ in}}$$

scale factor = $\frac{1''}{48''}$ or 1:48

25) A picture 4 in tall and 9 in wide is to be scaled to 2.5 in tall to be displayed on a web page. How wide should the picture be on the web page for the two pictures to be similar?

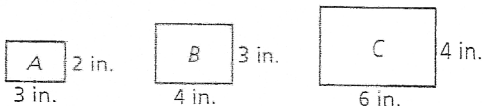
$$25) \frac{4}{2.5} = \frac{9}{x}$$

$$4x = 22.5$$

$$x = 5.625 \text{ in}$$

$$\approx 5.6 \text{ in}$$

26) Which rectangles are similar?

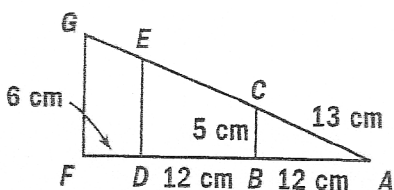


$$26) \frac{A}{B} = \frac{3}{4} \neq \frac{2}{3}$$

$$\frac{A}{C} = \frac{3}{6} = \frac{2}{4}$$

Yes, A ~ C

27) In the figure, Triangle ABC, Triangle ADE, and Triangle AFG are all similar. Find DE and FG.



27)

DE

$$\frac{x}{5} = \frac{24}{12}$$

$$12x = 120$$

$$x = 10 \text{ cm}$$

FG

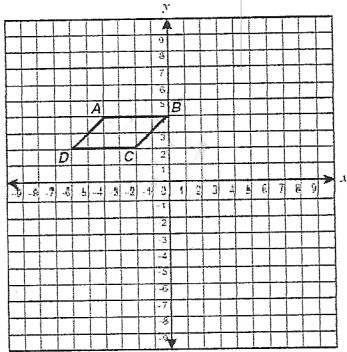
$$\frac{x}{5} = \frac{30}{12}$$

$$12x = 150$$

$$x = 12.5 \text{ cm}$$

28) Which set of coordinates identifies the vertices of a parallelogram that is similar to $ABCD$?

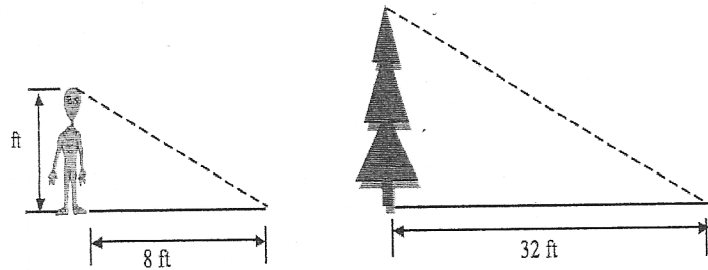
- A. $(0, 2), (2, 2), (1, 1), (-1, 1)$
- B. $(-2, 2), (0, 2), (1, 0), (-1, 0)$
- C. $(-8, 8), (-3, 8), (-5, 4), (-10, 4)$
- D. $(-3, 1), (1, 1), (-1, 5), (-5, 5)$



28) A → same shape
diff size

29) Lance, the alien, is 5 feet tall. His shadow is 8 feet long. At the same time of day, a tree's shadow is 32 feet long. What is the height of the tree?

- A) 20 feet
- B) 24 feet
- C) 29 feet
- D) 51 feet



$$29) \frac{5}{8} = \frac{x}{32}$$

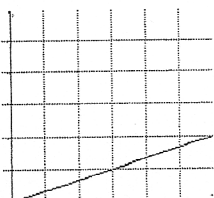
$$8x = 160$$

$$x = 20 \text{ ft.}$$

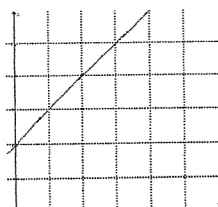
A

30) Proportional or not? Why?

A



B



30)

A: Yes, because the line passes through the origin.

B: No, because the line crosses the y-axis at 2.

Use the table below:

Drinking Gatorade

Time in seconds (x)	Amount in Ounces (y)
0	38
1	36
2	34
3	32
4	30

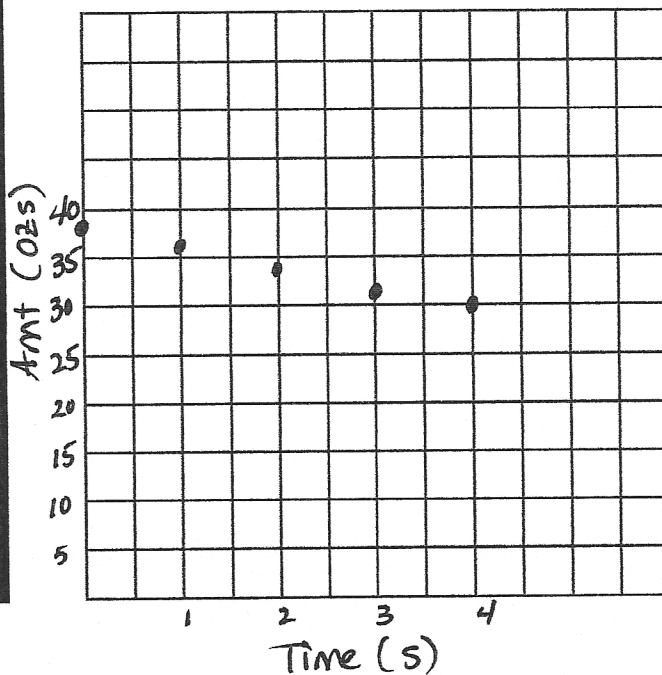
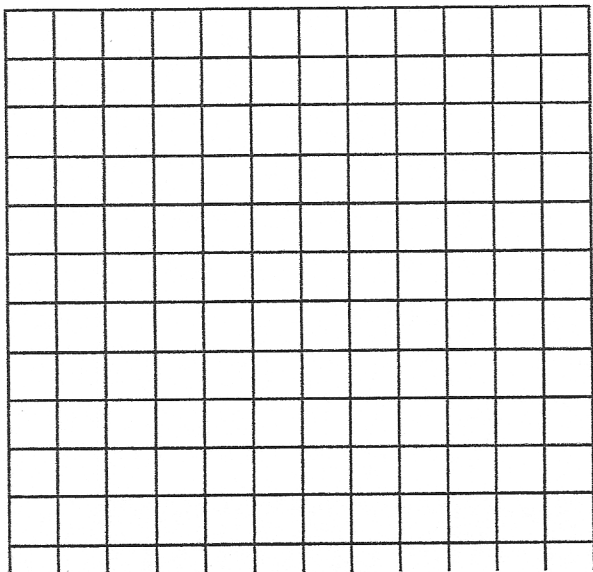
- 31) What is the unit rate?
- 32) What is the slope?
- 33) Graph the information which is given in the table and tell if there is a direct variation between the time and the amount of ounces.

31) - 2 oz/sec

32) - 2

33) No, they are not proportional.

Drinking Gatorade



34) Tell which equations below show a proportional relationship. Show how you know.

a) $y = \frac{3}{4}x$

b) $y = 5x - 3$

c) $\frac{y}{3} = x$

d) $y = -2x$

e) $y = \frac{6}{x}$

34)

a) $y = \frac{3}{4}x$ yes, it is in the form $y = kx$

b) $y = 5x - 3$ No, because the -3 makes it non-proportional.

c) $\frac{y}{3} = x \rightarrow$ solve for $x \rightarrow y = 3x$
yes, it is in the form of $y = kx$

d) $y = \frac{6}{x} \rightarrow$ No, because it is not in the form of $y = kx$

35) Which is the better buy? Feel free to look up measurements if you would like.

Item	Size	\$ Price
Breyer's Chocolate Crackle Vanilla with Crispy Chocolate Layers Ice Cream	1.5 quart	\$5.49
Dove Vanilla Milk Chocolate Ice Cream Bars (3 count)	8.67 ounces	\$3.99
Ben and Jerry's Chocolate Fudge Brownie Ice Cream	1 pint	\$4.79

Breyers is the best buy

35)

Breyers
 $\frac{\$5.49}{1.5 \text{ qt} = 48 \text{ ozs.}} = \frac{\$5.49}{48 \text{ ozs.}} = .114$

Dove
 $\frac{\$3.99}{8.67 \text{ ozs.}} = \frac{\$3.99}{8.67 \text{ ozs.}} = .460$

B & J
 $\frac{\$4.79}{1 \text{ pint} = 16 \text{ ozs.}} = \frac{\$4.79}{16 \text{ ozs.}} = .299$

- 36) Lauren bikes $1\frac{1}{3}$ miles in $\frac{1}{10}$ hour.
What is her rate of speed in miles per hour?

$$36) \frac{1\frac{1}{3}}{\frac{1}{10}} = \frac{\frac{4}{3}}{\frac{1}{10}} = \frac{4}{3} \div \frac{1}{10} = \frac{4}{3} \times \frac{10}{1} = \frac{40}{3} = 13\frac{1}{3} \text{ mil} \\ \text{1 hr.}$$

- 37) Jon's summer baseball league has 36 thirteen-year-olds and 48 fourteen-year-olds. Write the ratio of thirteen-year-olds to fourteen-year-olds in all three forms.
- $\frac{3}{4}$, 3 to 4, 3:4
 - $\frac{4}{7}$, 4 to 7, 4:7
 - $\frac{4}{3}$, 4 to 3, 4:3
 - $\frac{3}{7}$, 3 to 7, 3:7

$$37) \frac{36}{48} = \frac{3}{4}$$

A

38) $\frac{7}{b+5} = \frac{10}{5}$

$$38) \frac{7}{b+5} = \frac{10}{5}$$

$$10(b+5) = 35$$

$$10b + 50 = 35$$

$$\begin{array}{r} -50 \\ \hline 10b = -15 \end{array}$$

$b = -1.5$

39) $(\frac{7}{3} \div -\frac{1}{6}) \div -\frac{7}{8}$

$$39) (\frac{7}{3} \div -\frac{1}{6}) \div -\frac{7}{8}$$

$$\frac{7}{3} \times \frac{6}{1} = -\frac{14}{1} \div -\frac{7}{8} = -\frac{14}{1} \times \frac{8}{-7} = 16$$

16

40) $1\frac{5}{8} - 2\frac{7}{12}$

$$40) 1\frac{5}{8} - 2\frac{7}{12}$$

$$\frac{13}{8} - \frac{31}{12} = \frac{39}{24} - \frac{62}{24} = 9 \frac{-23}{24}$$

$\frac{-23}{24}$