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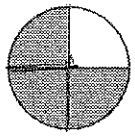
PreAP Test 5 Review: Percents, Measurement Conversions, Scale Drawings, Similar Figures

1. What percent of the circle below is shaded?

75%.



3/4 shaded = 75%

2. What is 10% of 50?

$\frac{x}{50} = \frac{10}{100}$ (÷2 on 10, ÷2 on 100)

5

3. Syeda has finished 20% of her math assignment. The assignment includes 50 problems. How many problems has Syeda completed?

$\frac{x}{50} = \frac{20}{100}$ (÷2 on 20, ÷2 on 100)

10 problems

4. Guillermo saved 25% of his paycheck last week. His paycheck was $1,000. How much money did Guillermo save?

$\frac{x}{1000} = \frac{25}{100}$ (×10 on 25, ×10 on 100)

part

$\frac{25}{250}$ (×10)

$250

5. Raul drove 80 miles. This represents 50% of his entire trip. What is the total number of miles in Raul's trip?

whole

$\frac{80}{x} = \frac{50}{100}$

5 | 80 → 16; 5, 30, 30, 0

$\frac{16}{160}$ (×10)

160 miles

6. Tom spends 30% of his monthly budget on rent. His total monthly budget is $3,000. How much does Tom spend on rent?

$\frac{x}{3000} = \frac{30}{100}$ (×30 on 30, ×30 on 100)

$\frac{30}{900}$ (×30)

$900

7. Of the flowers in Bella's garden, $\frac{1}{5}$ are tulips. What percent of the flowers in the garden are tulips?

$\frac{1}{5} = \frac{20}{100}$ (×20 on 1, ×20 on 100) = 20%

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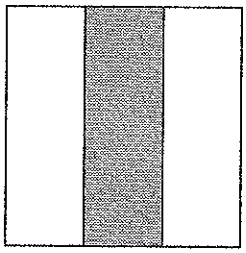
8. What percent of the square below is shaded?



$\frac{1}{3} = 33.\overline{3} = 33\frac{1}{3}\%$

A $33\frac{1}{3}\%$

B 50%

C $66\frac{2}{3}\%$

9. Abby bought one package of cookies that weighed 1.25 pounds and another package that weighed 2 pounds 2 ounces. What was the combined weight of the two packages of cookies she bought?

$\frac{2}{16} = \frac{1}{8} = 0.125$

$$\begin{array}{r} 1.250 \\ +2.125 \\ \hline 3.375 \end{array}$$

3.375 lbs or $3\frac{3}{8}$ lbs. or 3lb 6oz

10. The greatest snowfall in a 24-hour period was 76 inches, recorded in Silver Lake, Colorado. Which of these is the same as 76 inches?

A $6\frac{1}{3}$ feet

B 2.5 yards

C 7.6 feet

D $2\frac{1}{3}$ yards

$76\,\text{in} \cdot \frac{1\,\text{ft}}{12\,\text{in}} = \frac{76\,\text{ft}}{12} = 6\frac{1}{3}\,\text{ft}$

$76\,\text{in} \cdot \frac{1\,\text{ft}}{12\,\text{in}} \cdot \frac{1\,\text{yd}}{3\,\text{ft}} = \frac{76\,\text{yd}}{12 \cdot 3} = \frac{76\,\text{yd}}{36} = 2.1\,\text{yd}.$

11. Gretta is $1\frac{1}{2}$ meters tall. Which of the following is equivalent to $1\frac{1}{2}$ meters?

$1\frac{1}{2} = 1.5$

$1.5\,\text{m} \cdot \frac{100\,\text{cm}}{1\,\text{m}} \cdot \frac{10\,\text{mm}}{1\,\text{cm}} = 1.5 \cdot 100 \cdot 10\,\text{mm}$

$150 \cdot 10\text{mm}$

A 150 millimeters

B 1,500 millimeters

C 100 millimeters

D 1,000 millimeters

$$\begin{array}{r} 1.5 \\ 100 \\ \hline 1500 \end{array} \qquad \begin{array}{r} 150 \\ 10 \\ \hline 1500 \end{array}$$

1,500mm

12. The bridge in Pennyback, Texas is .345 km, how many meters is this?

$.345\,\text{km} \cdot \frac{1000\,\text{m}}{1\,\text{km}}$

$$\begin{array}{r} .345 \\ 1000 \\ \hline 345.000 \end{array}$$

345m

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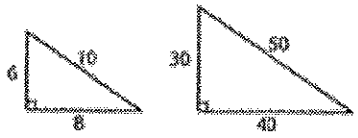
13. Liam needs 40 meters of fencing for his yard. He purchases 100 feet of fencing. Does he have enough fencing to complete the job? Why or why not? (1 meter is approximately 3.3 ft)

$40\text{m} \cdot \frac{3.3\text{ft}}{1\text{m}} = 132\text{ft}$ 3.3 × 40 = 132.0

No. He needs 32 more feet.

14. Look at the figures below.



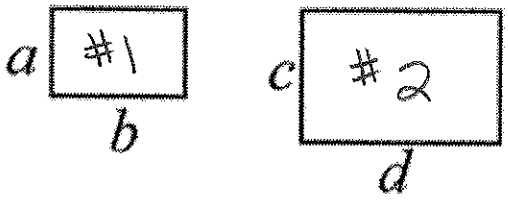
Which would NOT be a way to show that the figures are similar?

A The angles in both triangles are the same size.

B The corresponding sides in each triangle are proportional.

C The corresponding sides in each triangle are the same length.

15. Which shows that these two rectangles are similar?



Short / Long: $\frac{\#1}{\#2} = \frac{a}{b} = \frac{c}{d}$

or

Short = Long

$\frac{a}{c} = \frac{b}{d}$

A $\frac{d}{c} = \frac{b}{a}$

B $\frac{a}{d} = \frac{b}{c}$

C $\frac{a}{c} = \frac{d}{b}$

D $\frac{d}{c} = \frac{a}{b}$

$\frac{\text{long}}{\text{short}} = \frac{\#2}{\#1} = \frac{d}{c} = \frac{b}{a}$ $\frac{\#1}{\#2}$

lots of ways to set it up. Just be consistent

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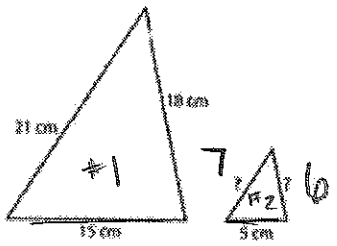
16. The lengths of the sides of two similar triangles are shown below.



$\frac{15}{21} = \frac{5}{x}$ (÷3) (÷3) $x = 7$

$\frac{15}{18} = \frac{5}{x}$ (÷3) (÷3) $x = 6$

$\frac{6}{18} = \frac{5}{15} = \frac{7}{21}$

$\frac{1}{3} = \frac{1}{3} = \frac{1}{3}$

The shortest side of a similar triangle is 5 centimeters. What are the lengths of the other two sides of the smaller triangle?

17. A blueprint shows a house that measures 12 in wide, 15 inches long and 18 inches tall. If the actual house is 45 inches long, how wide will the house be?

Blueprint / Real: $\frac{3}{9} = \frac{5}{15} = \frac{15\text{in}}{45\text{in}} = \frac{12\text{ in}}{x}$ (×4 long, ×4 wide)

$x = 36$ in

18. The dimensions of a rectangular photograph are nine centimeters long by six centimeters wide. If the photograph is enlarged proportionally so that the length is 15 centimeters, what would the width of the enlarged photograph be? 9cm long × 6 cm wide

$\frac{3}{5} \quad \frac{3 \cdot 9\text{cm}}{3 \quad 15\text{ cm}} = \frac{6\text{ cm}}{x}$ (×2)

10 cm wide

19. On a map of a park three inches represents twenty feet. How many inches would represent 120 feet?

$\frac{3\text{in}}{20\text{ft}} = \frac{x}{120\text{ ft}}$ (×6)

$3 \cdot 6 = 18$

18 in

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20. Breanna made a scale drawing of her bedroom in order to rearrange her furniture. She uses a scale of $\frac{1}{2}$ in. = 1 foot. Her bed is $4\frac{1}{2}$ feet by 6 feet.

What scale dimensions represent her bed?

$\frac{0.5in}{1ft} = \frac{x}{4.5ft}$ ×4.5 ×4.5

4.5 × .5 = 2.25

2.25in × 3in

$\frac{0.5in}{1ft} = \frac{x}{6ft}$ ×6 ×6

0.5 × 6 = 3.0

21. A model of a sailboat is 3 inches wide and 12 inches high. If the actual sailboat is 9 feet wide, what is the height?

w / h $\frac{3in}{12in} = \frac{9ft}{x}$ ×3 ×3

36 ft

22. On a map in a geography textbook, the scale is 1 inch equals 60 miles. What is the actual distance for a map distance of $4\frac{1}{4}$ inches?

$\frac{1in}{60mi} = \frac{4.5in}{x}$

4.5 × 60 = 270.0

270 miles

23. Ariel has three cans of wet dog food at home. She uses $\frac{3}{4}$ of a can for her dog, Muddy, each day. How many servings will she get from the three cans of dog food that she has? (6.3E)

$3 \div \frac{3}{4} = \frac{3}{1} \cdot \frac{4}{3} = \frac{12}{3} =$ 4 servings

24. What is the value of –2 + 100 – (–50)?

–2 + 100 + 50

–2 + 150

148

25. Sam runs 5 miles in 40 minutes. Trish can run 3 miles in 21 minutes. Who is the faster runner? (6.4B)

S: $\frac{40min}{5mi} = \frac{8min}{1mile}$ T: $\frac{21min}{3miles} = \frac{7min}{1mile}$ Trish