Nova Scotia Examinations

Mathematics at Work 10

QUESTION SAMPLER

NOVA SCOTIA

Notice to users

The purpose of this examination sampler is to give students and teachers an idea of the format of the examination. Since some teachers use this sampler as a revision tool in their classroom there is no posted answer key. If students completing this sampler have any questions, they should consult their mathematics teacher.

1. The maximum size (length + width + height) allowed for baggage carried onto an aircraft is 157 cm. Which of the following pieces of luggage would be over the size allowance?

ⓐ
15 in.
15 in.
15 in.

ⓑ
20 cm
30 cm
40 cm

ⓒ
1 m
30 cm

ⓓ
0.5 m
0.5 m
5 cm
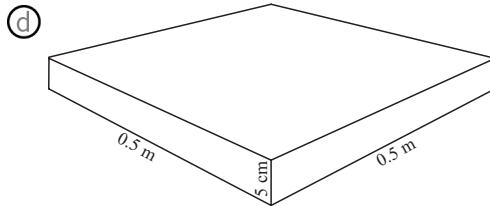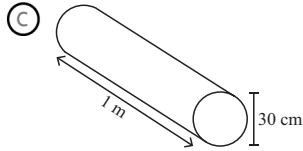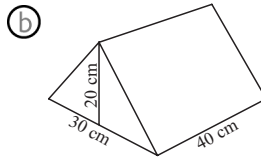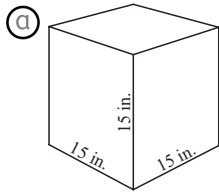
2. The area of a picture is 2925 mm². What would this area be in cm²?

ⓐ 2.925 cm²
ⓑ 29.25 cm²
ⓒ 292.5 cm²
ⓓ 29 250 cm²

3. What is the area of the playground modeled below?

24 m
8 m
18 m
9 m
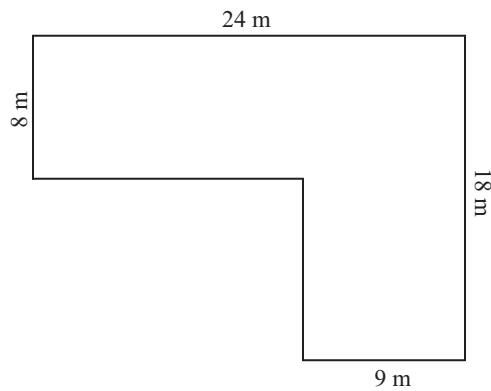
ⓐ 84 m²
ⓑ 19 440 m²
ⓒ 42 m²
ⓓ 282 m²

4. A length of rope is 5 feet 8 inches long. It needs to be cut into 10-inch pieces. How many 10-inch pieces will there be?

ⓐ 5

ⓑ 6

ⓒ 7

ⓓ 8

5. A tourist was pulled over in a 50 km/h zone. She was travelling at a speed of 50 mph. How much above the speed limit were they?

ⓐ 30.45 km/h

ⓑ 31.25 km/h

ⓒ 50 km/h

ⓓ 80.45 km/h

6. Arrange the following in order from least to greatest:

$\frac{1}{2}$ mile   780 m   2500 ft.

ⓐ
2500 ft.   780 m $\frac{1}{2}$ mile

ⓑ
2500 ft. $\frac{1}{2}$ mile   780 m

ⓒ
$\frac{1}{2}$ mile   780 m   2500 ft.

ⓓ
780 m   2500 ft. $\frac{1}{2}$ mile

7. The walking trail at Goat Island is 2.8 km long. What is this distance in miles?

ⓐ 1.74 mi.

ⓑ 0.57 mi.

ⓒ 4.48 mi.

ⓓ 2.8 mi.

8. Read the following problem.

Arial is 62.5 inches tall. How many centimetres tall is she?

Which proportion could be used to solve this problem?

(a) $\dfrac{62.5 \text{ in.}}{1 \text{ in.}} = \dfrac{2.54 \text{ cm}}{x \text{ cm}}$

(b) $\dfrac{62.5 \text{ in.}}{x \text{ cm}} = \dfrac{1 \text{ in.}}{2.54 \text{ cm}}$

(c) $\dfrac{x \text{ cm}}{100 \text{ cm}} = \dfrac{1 \text{ in.}}{62.5 \text{ in.}}$

(d) $\dfrac{62.5 \text{ in.}}{100 \text{ in.}} = \dfrac{x \text{ cm}}{1 \text{ in.}}$

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9. Using the ruler, determine the length of the key.

(a) $3\frac{1}{8}$"

(b) 3.2"

(c) $1\frac{1}{8}$"

(d) $1\frac{1}{4}$"

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10. A smartphone is 12 cm long. Estimate this length in imperial units.


(a) 3 inches

(b) 5 inches

(c) 10 inches

(d) 1 foot

11. Oliver sails 11 miles east from Lunenburg and then travels 8 miles south. What is his approximate distance from his starting point?
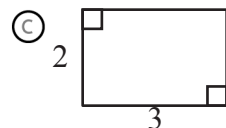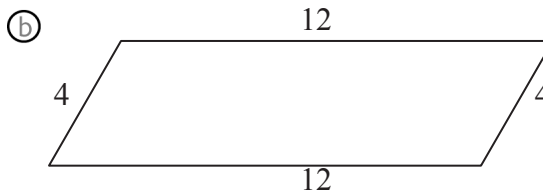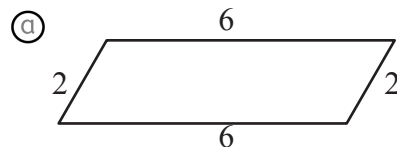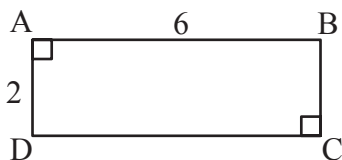
- (a) less than 8 miles
- (b) between 8 and 11 miles
- (c) between 11 and 19 miles
- (d) more than 19 miles

12. The size of a television screen is given by the length of its diagonal. If a screen measures 48" wide and 27" high, what would be the size of this television (to the nearest inch)?
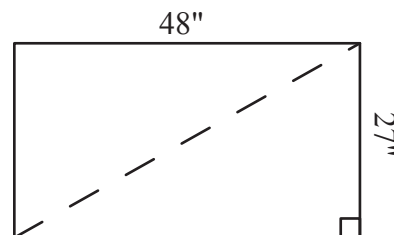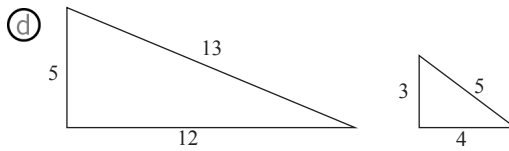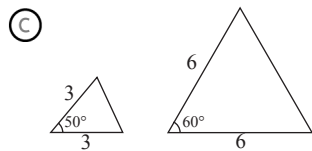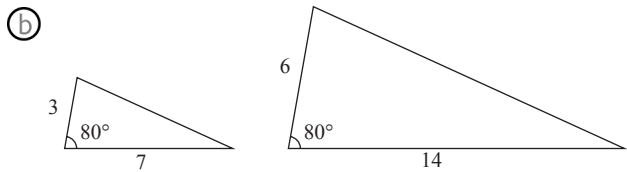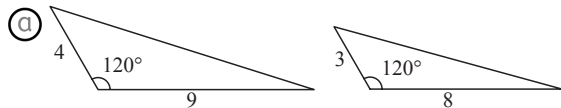

- (a) 40"
- (b) 48"
- (c) 55"
- (d) 75"

13. Which polygon is similar to ABCD?

14. Which pair shows similar triangles?

ⓐ
4, 120°, 9 | 3, 120°, 8

ⓑ
3, 80°, 7 | 6, 80°, 14

ⓒ
3, 50°, 3 | 6, 60°, 6

ⓓ
13, 5, 12 | 3, 5, 4

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15. Rebekah knows that for ladder safety the ladder should make an angle of 75° with the ground.
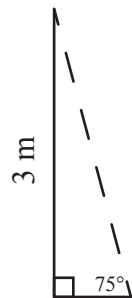
Which equation would be used to find the length of ladder that would reach a window 3 m above the ground?

ⓐ $\cos 75° = \dfrac{3}{x}$

ⓑ $\sin 75° = \dfrac{x}{3}$

ⓒ $\sin 75° = \dfrac{3}{x}$

ⓓ $\tan 75° = \dfrac{x}{3}$

3 m ... 75°

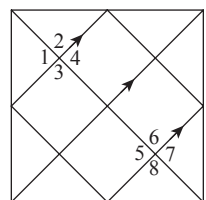**16.** A quilt block pattern with indicated parallel lines is shown. Which angle is congruent to ∠3?

ⓐ ∠5

ⓑ ∠6
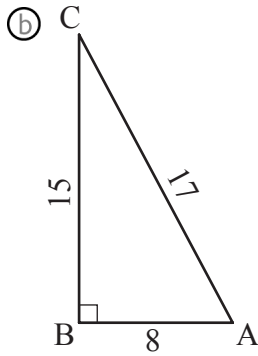
ⓒ ∠7

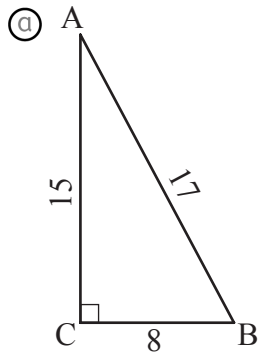ⓓ not enough information provided

17. Which diagram shows the tangent ratio of $\tan A = \dfrac{8}{15}$?

ⓐ

A
15
17
C   8   B

ⓑ

C
15
17
B   8   A

ⓒ

A
8
15
C   17   B

ⓓ

C
8
15
B   17   A

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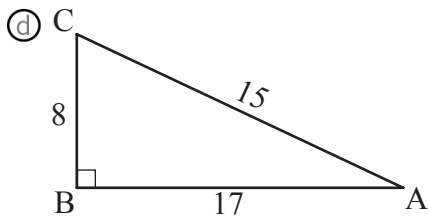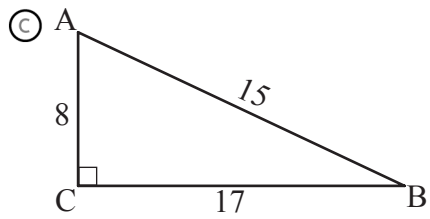
18. A fitness trainer raises the incline on a treadmill to 15°. The walking surface of the treadmill is 5 feet. How many feet did the trainer raise the treadmill from the floor?

5 ft.
x
15°
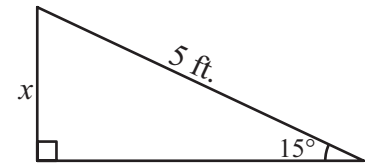
ⓐ 1.29 ft.   ⓑ 1.31 ft.
ⓒ 1.34 ft.   ⓓ 4.83 ft.

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19. In the diagram, which pair of adjacent angles is NOT supplementary.

ⓐ ∠1 and ∠2   ⓑ ∠2 and ∠4
ⓒ ∠5 and ∠6   ⓓ ∠6 and ∠8
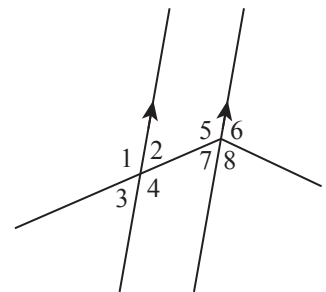
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20. Given the right triangle shown, which statement is true?
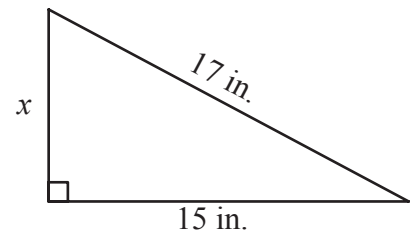
   ⓐ $x^2 + 15^2 = 17^2$ ⓑ $15^2 + 17^2 = x^2$

   ⓒ $x = 17 - 15$ ⓓ $x = 17 + 15$

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21. At "Frosty Treats" these are the prices for milkshakes:

Small (16 oz)................... 3^{00}

Medium (21 oz).............. 3^{75}

Large (28 oz).................. 5^{25}

What size offers the best value?

   ⓐ 16 oz   ⓑ 21 oz

   ⓒ 28 oz   ⓓ They all have the same value.

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22. You have CAD 125 that you wish to exchange for USD. If CAD 1 = USD 0.9698, how many USD will you receive?

   ⓐ USD 120.00   ⓑ USD 121.23

   ⓒ USD 128.89   ⓓ USD 130.21

23. The cost of a chicken salad sandwich increased from $2.80 to $3.25. What is the approximate percentage increase in price?

ⓐ 14%   ⓑ 16%

ⓒ 45%   ⓓ 86%

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24. Darren gets a summer job planting trees. He is paid 10¢ for each tree that he plants. What method of earning income best describes how Darren is paid?

ⓐ wages   ⓑ salary

ⓒ piecework   ⓓ commission
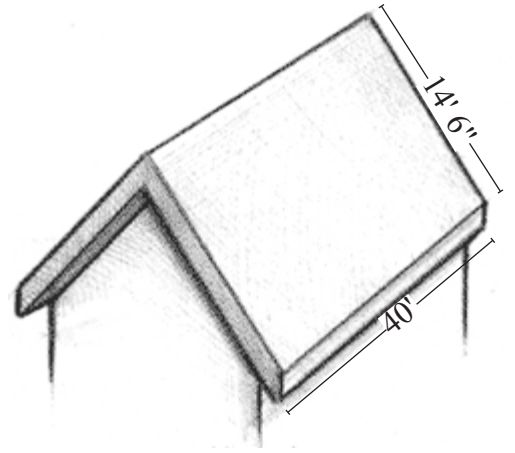
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25. Who earns the largest yearly salary?

Ian $850 biweekly
Curt $1700 monthly
Terry $11.15 per hour, 40 hours a week
Joe $22 500 yearly

ⓐ Ian   ⓑ Curt

ⓒ Terry   ⓓ Joe

26. The singles on both sides of this roof need to be replaced.

a) Calculate the area to be reshingled.
   *Round your answer to the nearest unit and include units
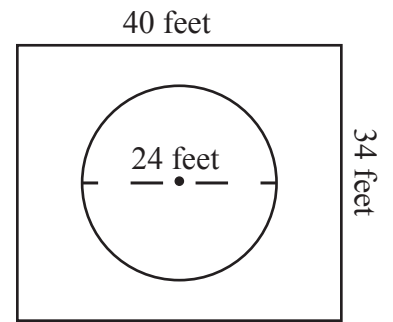   in your final answer.*

14' 6"

40'

b) A bundle of shingles covers about 33 square feet of roof. How many bundles of shingles will be
   needed to reshingle the roof?

11

27. A yard has a circular flower bed surrounded by grass.

a) Calculate the area of the flower bed.
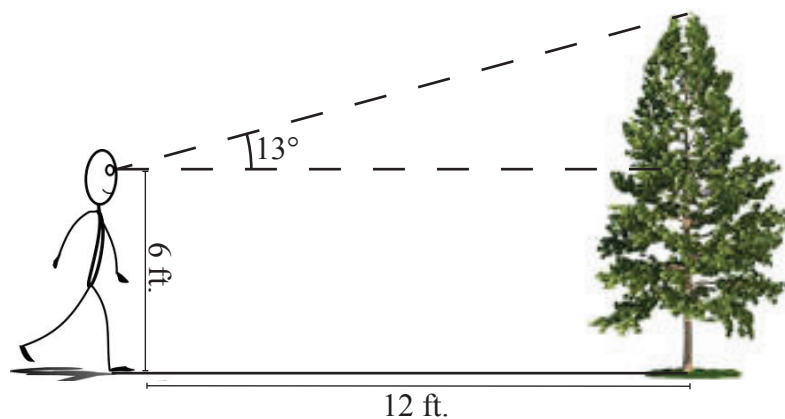*Round your answer to the tenth of a unit and include units in your final answer.*

40 feet

24 feet

34 feet

b) Determine the area of grass that surrounds the flower bed.
Round your answer to the nearest tenth of a unit and include units in your final answer.

28. Jim is standing 12 feet from a tree. From his eye level he can see the top of the tree at an angle of 13°.

Jim is only permitted to cut down trees that are taller than 10 feet. Determine whether or not Jim should cut down the tree. Show calculations to justify your answer.

29. Given the triangle below, calculate the length of segment DE.
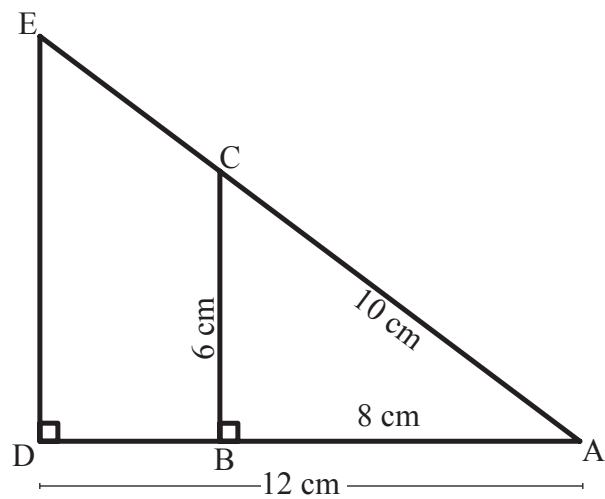
30. Amir works at a garden centre. He is paid $10.30/hr for regular hours and time and a half for any overtime hours worked (hours in excess of 40 h per week are considered overtime). Given Amir's timesheet below, calculate his gross pay.

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1 pm - 6 pm	7 am - 12 pm	day off	11 am - 4 pm	7 am - 12 pm	8:30 am - 12 pm	6 am - 12 pm
	1 pm - 5 pm		5 pm - 9 pm	1 pm - 4:30 pm	1 pm - 6 pm	1 pm - 3 pm