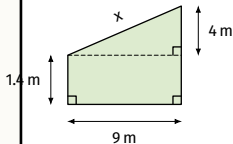


Indoor Skills Course



Use the shared diagram throughout. Show each measurement, apply the stated rates, and give a traceable final decision.

The profile is 9 m wide with a 1.4 m platform and 4 m rise; depth is 4.5 m. Only the visible side is decorated.



(a) Calculate the rectangle, triangle and total cross-sectional areas.

Solution: 12.6, 18, and 30.6 m².

(b) Allow 8% artwork wastage on the triangular area. Art costs \$68/m².

Solution: 18(1.08) = 19.44 m²; cost = 19.44(68) = \$1321.92.

(c) Branding on the rectangle is \$118/m² plus \$720.

Solution: 12.6(118) + 720 = \$2206.80.

(d) Find the slope using Pythagoras. Lights follow the base and slope at \$74/m.

Solution: Slope = $\sqrt{97} = 9.8489 \dots$ m; cost = $(9 + \sqrt{97})(74) = \$1394.82$.

(e) Concrete is \$215/m³. Find the total project cost.

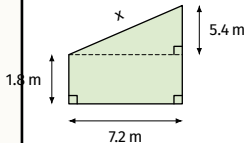
Solution: $V = 30.6(4.5) = 137.7$ m³; concrete = \$29 605.50; total = \$34 529.04.

Community Skate Feature



Use the shared diagram throughout. Show each measurement, apply the stated rates, and give a traceable final decision.

The profile is 7.2 m wide, with a 1.8 m platform and 5.4 m rise; depth = 3.8 m.



(a) Find the visible rectangle and triangle areas.

Solution: 12.96 m^2 and 19.44 m^2 ; total 32.4 m^2 .

(b) A sponsor pays $\$145/\text{m}^2$ for the rectangle, less a 6% discount, plus $\$540$ installation. Find the charge.

Solution: $12.96(145)(0.94) + 540 = \2306.45 .

(c) Art costs $\$64/\text{m}^2$ and lights along base and slope cost $\$79/\text{m}$.

Solution: Art = $19.44(64) = \$1244.16$. Slope = 9 m, so lights = $16.2(79) = \$1279.80$.

(d) Concrete costs $\$225/\text{m}^3$. Find volume and cost.

Solution: $V = 32.4(3.8) = 123.12 \text{ m}^3$; cost = $\$27\,702.00$.

(e) Find the overall cost.

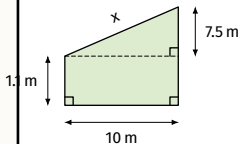
Solution: $2306.45 + 1244.16 + 1279.80 + 27\,702 = \$32\,532.41$.

Warehouse Obstacle



Use the shared diagram throughout. Show each measurement, apply the stated rates, and give a traceable final decision.

The profile is 10 m wide with a 1.1 m platform and 7.5 m rise; its depth is 5.2 m.



(a) Find the cross-sectional area and concrete volume.

Solution: $A = 11 + 37.5 = 48.5 \text{ m}^2$; $V = 48.5(5.2) = 252.2 \text{ m}^3$.

(b) Concrete is sold in 6 m^3 truckloads at \$1320 per load. Find the number and cost.

Solution: $252.2/6 = 42.03 \dots$, so 43 loads; $43(1320) = \$56\,760$.

(c) Visible-side finishes cost \$130/ m^2 on the rectangle and \$60/ m^2 on the triangle, plus one \$800 setup fee.

Solution: $11(130) + 37.5(60) + 800 = \4480 .

(d) Lights follow the base and slope at \$72/m.

Solution: Slope = 12.5 m; lights = $22.5(72) = \$1620$.

(e) Find the total and explain why truck rounding matters.

Solution: Total = $56\,760 + 4480 + 1620 = \$62\,860$. Rounding down would leave insufficient concrete.